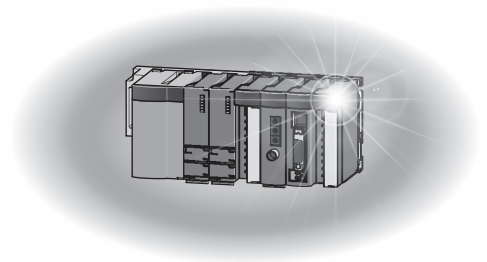


Mitsubishi Programmable Controller

MELSEC **Q** series

MELSECWinCPU Module User's Manual (Hardware Design, Function Explanation)

-Q10WCPU-W1-E
-Q10WCPU-W1-CFE
-SW1PNC-WCPU-B



Powered by CONTEC

This product was jointly developed and manufactured by Mitsubishi and CONTEC Corporation.
Note that the warranty on this product differs from that on other programmable controller products.
(Refer to "WARRANTY" in this manual.)

Precautions regarding Warranty

This product was jointly developed and manufactured by Mitsubishi and CONTEC.

For a warranty and specifications, pay attention to the following remarks.

Note that there are some precautions regarding warranty and specifications of the product.

<Warranty>



	Q10WCPU-W1	MELSEC-Q series
A warranty term without charge	12 months after the delivery or 18 months after the production	36 months after the delivery or 42 months after the production
Onerous repair term after discontinuation of production	6 years	7 years

- It may take some time to respond to the problem or repair the product depending on the condition and timing.

Safety Precautions

(Read the following carefully before using this product)

For the use of this product, read this manual and relative manuals introduced in this document carefully. Then take enough care of the safety and keep the right procedures. These safety precautions are limited to this product. For programmable controller CPU systems, refer to the manual of the corresponding CPU module.


This “Safety Precautions” classify the level of precautions into “ Warning” and “ Caution”.



“Warning” indicates that dangerous situations will lead to death or serious injury if the right procedures are not followed.



“Caution” indicates that dangerous situations will lead to light injury or the loss of property if the right procedures are not followed.

The items mentioned in “ Caution” also can cause serious accidents according to the situation.

The mentioned items are all important. You must follow them.

Keep this manual carefully at hand in order to read at any time and have it available for the end user.

Handling precautions

WARNING

- Never use this product in locations where there is flammable gas and corrosive gas. It may lead to explosion, fire, electric shock and breakdown.
 - The operating product may reach a high temperature. Never touch its surface. It may lead to burns.
 - Never touch this product with wet hands. It may lead to electric shock.
-

CAUTION

- As this product contains precision electronic components, do not use or store it in a place subject to shock or vibration. Doing so may cause malfunction, heat generation, fault, or damage.
 - Do not modify the product. Mitsubishi will bear no responsibility for any problems, etc., resulting from modifying the product.
 - Do not use or store the product in a hot or cold place, or in a place that is subject to severe temperature changes. Doing so may cause malfunction, heat generation, fault, or damage.
 - Do not use or store the product in a place subject to direct sunlight or near a heating device, such as a stove. And do not use or store the product near equipment generating a strong magnetic field or radio waves. Doing so may cause malfunction, heat generation, fault, or damage.
 - Some products have to be set up before they can be used normally. Be sure to check whether the product is such before use. Set the switches and jumpers only as specified, or the product may develop trouble.
 - When the power is ON, don't change any DIP switches except for SW-2 of DIP switch 1. If not, the product may develop abnormal conditions such as the hangup of OS, system crash and irregular operation.
 - You can set SW-1 of DIP switch 1 to ON only when power is OFF. If SW-1 is ON when power is ON, it does not work in order. You should check that SW-1 is OFF before turning power ON.
 - You should wait for 5 minutes after power OFF till the next power ON operation..
 - The monitor connected to this product may not be able to show screen in order if power of the monitor was turned ON at an incorrect time. Turn ON power of a monitor before turning ON power of this product.
 - When using some USB devices, the current may flow to this product reversely via a connected cable when power of this product is OFF. In this case, you may not be able to boot up this product because +5V power is kept to ON. When this problem happens, remove the USB device, turn ON power of this product and then, connect the USB device again. (If you want to use the USB device as a boot device, connect it by the time that device detection starts.)
 - Keep the inside of a module away from foreign objects such as chips or wire scraps. It may lead to fire, breakdown and irregular operations.
 - Do not use or store this product where any chemical atmosphere and objects can touch the product.
 - Do not use or store this product where excessive moisture or a lot of dust exists. It is very dangerous if you use the product where there is high humidity, liquid objects or conductive dust. When you have to use the product under such conditions, set the product in the protected structure against dust such as the control panel with dust protection.
 - If you notice abnormal odor or overheating, please disconnect the power cable immediately.
 - After you become aware of breakdown or abnormal conditions such as an abnormal smell or excessive heading, first turn the power OFF. Then make contact with the store which provided the product.
 - Do not open the product casing. Mitsubishi will disclaim any responsibility for products whose casing has been opened.
-

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- Do not modify the product. Mitsubishi will bear no responsibility for any problems, etc., resulting from modifying the product.
 - To clean this product, gently wipe it with a soft cloth soaked with water or a neutral detergent. Do not use benzene, paint thinner or other volatile solvents as they can cause the coating to discolor or peel off.
 - The specifications of this product are subject to change without notice because of function addition and quality improvement. Even when using the product continuously, read the user's manual and check the contents.
 - If you move or transfer the product, make sure to provide this manual with the product.
 - Regardless of the foregoing statements, Mitsubishi is not liable for any damages whatsoever (including damages for loss of business profits) arising out of the use or inability to use this Mitsubishi product or the information contained herein.
 - When disposing of a used battery, follow the disposal procedures stipulated under the relevant laws and municipal ordinances.
-

Design Precautions

WARNING

- Provide this product with external safety circuits so that the entire system is protected even if the external power supply malfunctions or this product breaks down. If not, incorrect output or incorrect operations may lead to accidents.
 - (1) Configure those circuits outside this product that include an emergency stop circuit, a protection circuit, an interlock circuit with contrary operations such as normal / reverse rotations, and an interlock circuit for preventing a machine from breaking beyond the upper or lower positioning limit.
 - (2) This product stops calculations and turns all outputs off upon detection of the following states.
 - The overcurrent or overvoltage protector of the power supply module has been actuated.
 - The self-diagnostic feature of this product has detected an error such as a watchdog timer error. If I/O control transparent to this product causes an error, all of the outputs may be turned on. Provide this product with an external fail-safe circuit or mechanism so that the machine operates on the safe side in that case.
 - (3) Depending on the fault of a relay or transistor in an output module, the output may remain on or off. For the output signals which can result in serious accidents, provide external monitor circuits.
 - If an overcurrent continues to flow to the output for an extended period of time due to a rating error or short-circuited load, the output module may smoke or burn. Provide an external safety circuit such as a fuse.
 - Configure the circuit containing this product so that the external power supply is turned on after this product is turned on. Turning on the external power supply before this product may result in an output error or malfunction, possibly causing an accident
 - When you want to know the operating condition of each station when the network has had a communication error refer to manuals about the network. In this case, wrong output or wrong operation may cause accidents.
-

CAUTION

- Any control line or communication cable should be neither bundled with nor routed adjacent to the main circuit or power line. The control line and communication cable should be at least 100mm away from the main circuit and power line. Poor wiring conditions result in malfunctions caused by noise.
-

-
- When the output module controls components such as the lamp load, heater, and solenoid valve, a large current (about 10 times the normal value) may flow at the OFF-to-ON transition of the output. Take appropriate measures, for example, by replacing it with a module of a higher rated current.
 - The period after a programmable controller CPU module turned on or got reset till a programmable controller CPU module attains the "RUN" condition is not fixed. This period will change according to the system structure, parameter settings, the size of programs and so on. Design the entire system to be protected even if the period till a programmable controller CPU module attains "RUN" would change.
-

Installation precautions

WARNING

- Use this product in the environment specified in this manual. Using this product in the environment not satisfying all the specifications can cause an electric shock, fire, malfunction, product damage, and/or product degradation.
 - Mount this product on the base unit with the module fixing hook at the bottom of this product fitted in the fixing slot in the base unit. Failure to mount this product correctly can allow this product to malfunction or fall. Before attempting to use this product in a place subject to considerable vibration or shock, use the module fixing screw to fasten this product securely to the base unit. Module fixing screw must be tightened within the specified tightening torque range. Tightening the screw loosely can allow this product to fall, cause a short circuit, or malfunction. Tightening the screw excessively can break the screw or module, allow this product to fall, a short circuit, or malfunction.
 - When connecting an extension cable, plug it securely into the relevant connector on the base unit or the Module. Check the connection after plugging it in to prevent an imperfect contact which can cause input and output errors.
 - Before attaching or detaching this product, be sure to turn the external power supply off for all phases, or this product may be damaged.
 - Never directly touch any conductive part or electronic component of this product. Doing so may cause the Module to malfunction or fail.
-

CAUTION

- Before mounting or unmounting this product or any other product, be sure to turn the external power supply off for all phases. Failure to turn it off for all phases may cause product damage. The exchange of modules under online (power-on) conditions is possible only when the system is built with the programmable controller CPU modules supporting the online module exchange or the target module is MELSECNET/H remote I/O station. But the modules supporting the exchange under online (power-on) conditions have limitations and each module respectively has the right procedure of its exchange. For details, refer to the pages of online module exchange described on "QCPU User's Manual(Hardware Design, Maintenance and Inspection)" and the manuals of the modules supporting online module exchange.
 - Do not touch directly conductive area and electric components of the module. It may lead to irregular operations and breakdown of the module.
 - When you use motion CPU modules or motion modules, make sure that the combination of modules is correct after turning power on. If the combination is irregular, the product may get damaged. For details, refer to user's manual of motion CPU modules.
-

Wiring precautions

⚠ WARNING

- Before mounting or wiring this product or any other product, be sure to turn the external power supply off for all phases. Failure to turn it off for all phases may cause an electric shock, product damage, or malfunction.
 - After wiring, you should install the terminal cover packed with the product before you turn power on and start operations. If not, you may get an electric shock.
-

⚠ CAUTION

- Be sure to ground the FG and LG terminals by at least Class D Grounding (former Class3 Grounding) exclusive for programmable controller CPU. Failure to do so may cause an electric shock or malfunction.
 - Be careful not to let foreign matter such as chips and wire tailings enter into this product. Foreign matter caught in this product may cause a fire, fault, or malfunction.
 - Wire each product to the module correctly after checking the rated voltage and pin assignments of the product. Connecting a power supply not matching the rating or miswiring may cause a fire or fault.
 - Tighten each terminal screw within the specified tightening torque range. Tightening the terminal screw loosely may result in a short circuit or malfunction. Tightening the terminal screw excessively can break the screw or the Module, also resulting in a short circuit or malfunction.
 - When you connect external components to this product, connect them after the installation.
 - The cables connected to this product must be either enclosed in ducts or fixed with clamps. Doing neither allows the cables to hang loose, move, or be pulled inadvertently, resulting in this product and/or cables becoming damaged or this product malfunctioning due to an imperfect contact in the cable connection.
 - When disconnecting each cable from this product, do not hold the line to pull. Unplug the cable after loosening the screws fastening the cable end to the connector in this product. Pulling the cable connected to this product may break this product and/or cable or cause this product to malfunction due to an imperfect contact in the cable connection.
 - Do not connect the outputs of two or more power modules in parallel. Doing so heats up the power modules, possibly causing a fire or fault.
 - The connectors for external connection must be crimped, welded with pressure, or soldered correctly with the relevant tool. For the crimping and pressure welding tools, refer to the input/output module user's manual. An imperfect connection can cause a short circuit, fire, or malfunction.
 - For the cables connected to this product, wire them so that they do not interfere with the switches and the LEDs of the product.
 - A protective film is attached to the top of the module to prevent foreign matter, such as wire chips, from entering the module during wiring. Do not remove the film during wiring. Remove it for heat dissipation before system operation.
-

Power Supply and Maintenance Precautions

⚠ WARNING

- Never touch any terminal with the Module powered, or it may malfunction.
 - Before cleaning this product or tightening up terminal screws, be sure to turn the external power supply off for all phases. Failure to turn it off for all phases may either result in an electric shock or cause this product to fail or malfunction. Tightening the screw loosely can allow this product to fall, cause a short circuit, or malfunction. Tightening the screw excessively can break the screw or this product, allowing this product to fall, cause a short circuit, or malfunction. Do not touch any terminal with this product powered on, or it may malfunction.
-

⚠ CAUTION

- Read the manual thoroughly and check the entire system sufficiently for safety before performing online operations during a machine run (in particular, for a program change, forced output, and operation status change). An operation error can break the machine or cause an accident.
 - Do not disassemble or modify any module. Doing so may result in a fault, malfunction, injury, or fire.
 - Before attaching or detaching the Module, be sure to turn the external power supply off for all phases. Failure to turn it off for all phases may cause the Module to fail or malfunction.
-

Disposal Precautions

⚠ CAUTION

- When disposing of the product, treat it as industrial waste.
 - When disposing of a used battery, trash it separately under the relevant laws.
(For details of battery regulations of EU, refer to “Appendix 3 Disposal of Battery”)
-

Transport Precautions

⚠ CAUTION

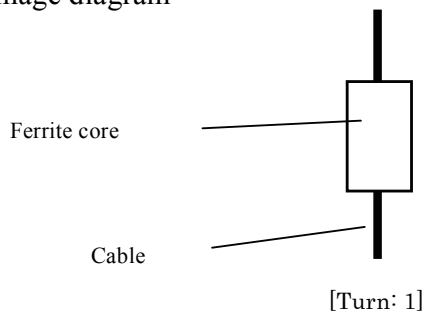
- When you transport batteries with lithium, you should treat them according to transport regulations.
(For details of transport regulations, refer to “Appendix 2 Battery”)
-

EMC Precautions

- Regarding “EMC Instruction Class A Notice”
 1. The ferrite core must be installed in each of the following cables so that this product may fit the above-mentioned standard. Refer to the following for the model of ferrite core. (Equivalent goods are also available.)

Port	Name	Maker	Turn
USB A,B,C,D,E	E04SR200935A	SEIWA	1
SERIAL	E04SR200935A	SEIWA	1
I/O	E04SR200935A	SEIWA	1
A-RGB	E04SR241331A	SEIWA	1

Image diagram



2. The shield of cables connected to USB and I/O port should be connected to FG nearby the main body.
-

CONDITIONS OF USE FOR THE PRODUCT

- (1) Mitsubishi programmable controller ("the PRODUCT") shall be used in conditions;
 - i) where any problem, fault or failure occurring in the PRODUCT, if any, shall not lead to any major or serious accident; and
 - ii) where the backup and fail-safe function are systematically or automatically provided outside of the PRODUCT for the case of any problem, fault or failure occurring in the PRODUCT.
- (2) The PRODUCT has been designed and manufactured for the purpose of being used in general industries.

Mitsubishi shall have no responsibility or liability (including, but not limited to any and all responsibility or liability based on contract, warranty, tort, product liability) for any injury or death to persons or loss or damage to property caused by the product that are operated or used in application not intended or excluded by instructions, precautions, or warning contained in Mitsubishi's user, instruction and/or safety manuals, technical bulletins and guidelines for the product.

("Prohibited Application")

Prohibited Applications include, but not limited to, the use of the PRODUCT in;

- Nuclear Power Plants and any other power plants operated by Power companies, and/or any other cases in which the public could be affected if any problem or fault occurs in the PRODUCT.
- Railway companies or Public service purposes, and/or any other cases in which establishment of a special quality assurance system is required by the Purchaser or End User.
- Aircraft or Aerospace, Medical applications, Train equipment, transport equipment such as Elevator and Escalator, Incineration and Fuel devices, Vehicles, Manned transportation, Equipment for Recreation and Amusement, and Safety devices, handling of Nuclear or Hazardous Materials or Chemicals, Mining and Drilling, and/or other applications where there is a significant risk of injury to the public or property.

Packing List

Thank you for purchasing this Mitsubishi product.

The product package contains the items listed below.

Check the contents of the product package.

If you discover any damaged or missing items, contact the distributor.

Contents

Name	Q10WCPU-W1	Q10WCPU-W1
	-J, -E	-CFJ, -CFE
	Pcs.	Pcs.
The main body	1	1
CF card	0	1 *3
Fittings and screws to fix a CF card	1set	1set *3
Connector cover for RGB	1	1
Connector cover for SERIAL	1	1
Connector cover for LAN	2	2
Connector cover for USB	5	5
Connector for terminal block	1	1
Royalty consent contract (OS)	1	1
Royalty consent contract (Recovery soft)	1	1
Royalty consent contract (SW1PNC-WCPU-B)	1	1
Product Guide	1	1
Notes on Windows®Embedded Standard	1	1
Precaution List	1	1
Setup Procedure	1	1
Recovery Procedure	1	1
Recovery Media	1	1
SW1PNC-WCPU-B *1*2	1	1
Fixing bandage	2	2

*1: “MELSECWinCPU Module User’s Manual (Hardware Design, Function Explanation)” and “MELSECWinCPU Module Q-Bus Interface Driver User’s Manual (Utility Operation, Programming)” are included in SW1PNC-WCPU-B.

[File path: /Manual] For details, refer to “readme.txt” included in the left folder.

In order to read the above manuals, you should prepare a PC installed with Adobe® Reader®. MELSECWinCPU module cannot be used as it is not possible to install Adobe® Reader® and therefore cannot be used to read manuals..

User’s manual is sold separately. Purchase it separately.

Manual Name	Manual No. (Type Code)
MELSECWinCPU Module Q-Bus Interface Driver User's Manual (Utility Operation, Programming)	SH-081054ENG (13JZ67)
MELSECWinCPU Module User's Manual (Hardware Design, Function Explanation)	SH-081055ENG (13JZ68)

*2: SW1PNC-WCPU-B has been installed to the main body.

*3: It is attached to the main body. Do not turn on power of the product without a CF card.

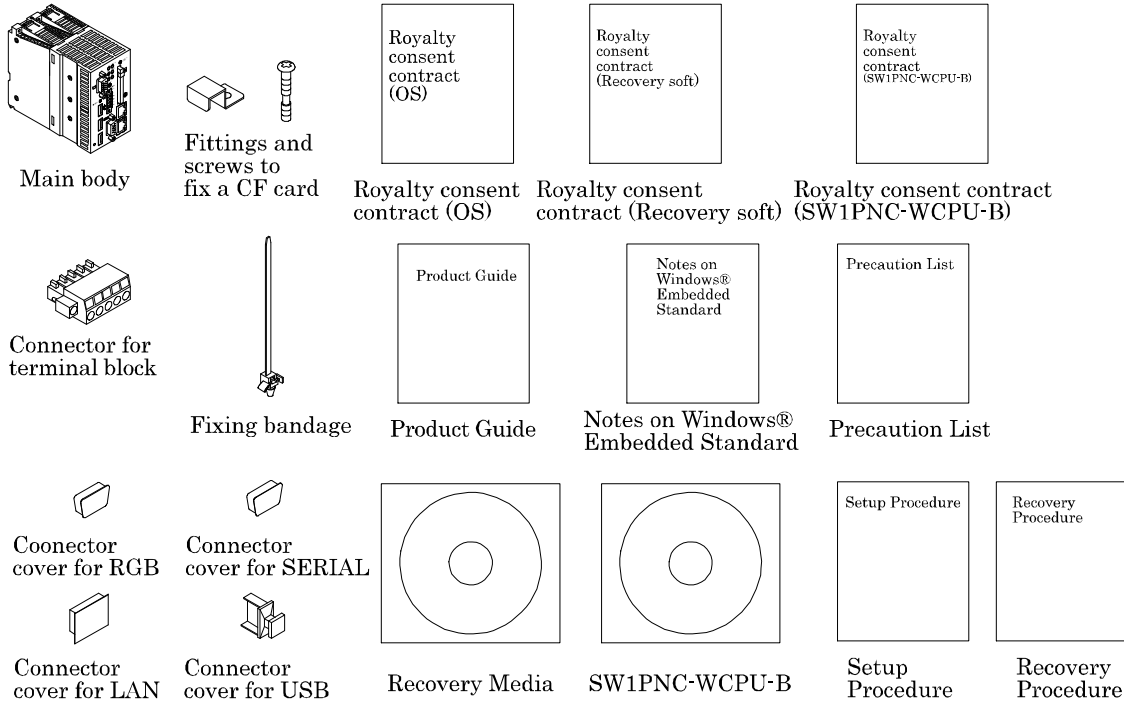
⚠ CAUTION

For the -CFJ and -CFE models, do not turn the power on with the CF card removed.

The "Hard Disk Boot Priority" setting of BIOS may be changed and a BIOS error may occur when the power is turned on.

(For details on how to recover from errors, refer to "BIOS Error" of "Chapter 8 Troubleshooting".)

Configuration



⚠ CAUTION

(1) When turning off the power of the standard base plane or the additional base plane, complete the shutdown of OS before turning power off. If the power is turned off while the OS is working the, OS may be out of order at the next and later boot.

In order to protect the modules from an unexpected power failure, we recommend to connect UPS to your system.

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 - (3) This document is subject to change without notice at any time.
 - (4) While we are doing our best to ensure this document has no error, should you have any questions or find any omissions or similar, consult the distributor.
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1. Introduction

About the Product

This product is the controller which can be installed with Mitsubishi General programmable controller CPU, MELSEC-Q Series and supports Windows OS.

This product can work as the multiple CPU configuration with programmable controller CPU and it realizes the seam less processing of both controlling and computing. It can boot from a built-in SSD and a CF card in a CF card slot (Type I).

This product has two LAN ports. They can be used to build systems for Web, Internet and Intranet.

Embedded-type CPU and chipset have been adopted. The use of readily available parts ensures the ease of the use of the product. In addition, the use of self-customized BIOS allows support to be provided at the BIOS level.

Features

- MELSEC-Q Series programmable controller CPU modules cover sequence controlling. This MELSECWinCPU module covers computing. The combination of them realizes the seamless processing of information and control data.
- Very small Windows OS system (2-slot size of a MELSEC-Q series programmable controller CPU)
- Adopts Intel® Atom™ processor N450, belonging to energy saving platform. It manages both enough performance and energy saving.(or has low power consumption while maintaining adequate performance.)
- Various interfaces are installed as the standard. 1000BASE-T LAN, USB2.0, CF card slot and so on.
- The use of Contec-customized BIOS (mfd. By Phoenix-Award) allows the support provided at the BIOS level.
- A CF card can be installed as an external storage device. The use of it is preferable if it works where shock and vibration exist and is ideal for long periods of continuous operation.
- Built-in SSD has double write protect functions (an EWF function of OS and write protect function of DIP switch). It provides more reliable protection for important data.

Built-in OS

- Windows® Embedded Standard 2009

Limitations

This product employs PC architecture and has a Windows® OS built in.

Details such as the period during which this product is available are different compared with other MELSEC Series products, so check the following limitations before purchasing this product.

Period during Which This Product Is Available

The period during which this product is available is different compared with other MELSEC Series products. Please consult your local Mitsubishi representative.

Warranty Support Term

For details, refer to "Precautions regarding Warranty".

Gratis Warranty Term

For details, refer to "Precautions regarding Warranty".

OS Support Period

The OS (Windows Embedded Standard 2009) support period conforms to the support period provided by Microsoft Corporation.

Security Countermeasures

The product may be infected by viruses and other malicious software when connected to the Internet, a USB memory device, or other external environments. Establish security countermeasures to counteract these threats.

2. System Reference

Specification

Table 2.1 Functional Specification (1/2)

Item		Specifications
CPU		Intel® Atom™ Processor N450 1.66GHz
Chipset		Intel® ICH8M
Memory	L1 Cache	Instruction 32KB + Data 24KB
	L2 Cache	512KB
	Main memory	1GB (3.3V 200-pin DDR2 SO-DIMM DDR667Socket x 1)
Video	Controller	N450 built-in
	Video RAM	main memory shared
	CRT I/F	Analog-RGB 15-pin HD-SUB connector
	Resolution	1,400 x 1,050 @60Hz (16 million colors)
Serial I/F		RS-232C-compliant: 1ch (9-pin D-SUB connector) baudrate: 50 - 115200bps
LAN	I/F	1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector × 2
	Controller	Intel 82574L
CFcard slot		CF CARD Type I (Only for the memory card of IDE connection) *1 Indication: access LED (green) × 1 *2, -CFJ, -CFE models have a CFcard 4GB.
Built-in SSD *3		Built-in flash drive 4GB
USB I/F		USB2.0-compliant 5ch (front 3ch, bottom 2ch) Transfer rate: 480Mbps Supply power: +5V each channel 0.5A max. *4
Watch dog timer		2ch Time-up period: system WDT 20msec - 2sec, user WDT 10msec - 10sec
General I/O *5, *6		Terminal block [1, 2] Input for shutdown (current drive input) Terminal block [3] Output to notify shutdown completion (open collector output) Terminal block [4] Output to notify the start of watch dog timer (open collector output)
RTC/CMOS		Lithium battery backup life: 10 years or more (when no power input, at 25°C) The real-time clock is accurate within ±3 minutes (at 25°C) per month
Indication		RDY (green), B.RUN (green), ERR. (red), USER (red), BAT.(orange), EXIT (green), CF/SSD (green)
Control		Reset PUSH switch, DIP switch 4-pole, DIP switch 6-pole, 3-position toggle switch
Supported OS		Windows® Embedded Standard 2009

*1: When power is on, you can not push in / pull out a CF card.

Memory card is supported but other purposes are not supported.

*2: Access LED shows the access of both a CF card and built-in SSD.

*3: Built-in SSD is used as OS space. SSD has rewritable life (1 million times).

For details, refer to “Built-in SSD” of “Chapter 5 Each Component Function”

*4: Current capacity shows the maximum value the connector supports.

But the actual value is limited because the total current cannot exceed the capacity of the power supply module.

Therefore the actual available value may be less than 0.5A.

*5: General I/O is not evaluated by UL.

*6: When you want to use it in noisy environments, we recommend you to use the following noise filter.

Name	Type	Maker
Noise filter for general I/O	NAC-06-472	Mfd. By COSEL

Table 2.1 Functional Specification (2/2)

Item		Specifications
The number of base unit slots this module occupies		2 slots
Physical dimensions [mm]		55.2(W) × 115.0(D) × 98.0(H) (Excluding protrusions)
DC5V internal current consumption		3.0A (Max.) (This does not include the current consumption by any peripheral devices (such as the CF Card and USB device))
Acceptable momentary power failure time		Depending on the power supply module
Weight	Q10WCPU-W1-E	440g
	Q10WCPU-W1-CFE	450g (Including CF card, Fittings and screws to fix a CF card)

Table 2.2 Installation Environment Conditions

Item	Specifications																										
Surrounding air temperature	0 to 55°C																										
Surrounding storage temperature	-25 to 75°C																										
Surrounding operating humidity	5 to 95%RH (No condensation)																										
Surrounding storage humidity	5 to 95%RH (No condensation)																										
Vibration resistance	Conforming to JIS B 3502 IEC61131-2 <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">With intermittent vibration</th> <th rowspan="3">Tested 10 times (for 80 minutes) in each of the X, Y, and Z directions</th> </tr> <tr> <th>Frequency</th> <th>Acceleration</th> <th>Amplitude</th> </tr> </thead> <tbody> <tr> <td>$5 \leq f < 8.4\text{Hz}$</td> <td>none</td> <td>3.5mm</td> </tr> <tr> <td>$8.4 \leq f < 150\text{Hz}$</td> <td>9.8m/s²</td> <td>none</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">With continuous vibration</th> <th rowspan="4">none</th> </tr> <tr> <th>Frequency</th> <th>Acceleration</th> <th>Amplitude</th> </tr> </thead> <tbody> <tr> <td>$5 \leq f < 8.4\text{Hz}$</td> <td>none</td> <td>1.75mm</td> </tr> <tr> <td>$8.4 \leq f < 150\text{Hz}$</td> <td>4.9m/s²</td> <td>none</td> </tr> </tbody> </table>	With intermittent vibration			Tested 10 times (for 80 minutes) in each of the X, Y, and Z directions	Frequency	Acceleration	Amplitude	$5 \leq f < 8.4\text{Hz}$	none	3.5mm	$8.4 \leq f < 150\text{Hz}$	9.8m/s ²	none	With continuous vibration			none	Frequency	Acceleration	Amplitude	$5 \leq f < 8.4\text{Hz}$	none	1.75mm	$8.4 \leq f < 150\text{Hz}$	4.9m/s ²	none
With intermittent vibration			Tested 10 times (for 80 minutes) in each of the X, Y, and Z directions																								
Frequency	Acceleration	Amplitude																									
$5 \leq f < 8.4\text{Hz}$	none	3.5mm																									
$8.4 \leq f < 150\text{Hz}$	9.8m/s ²	none																									
With continuous vibration			none																								
Frequency	Acceleration	Amplitude																									
$5 \leq f < 8.4\text{Hz}$	none	1.75mm																									
$8.4 \leq f < 150\text{Hz}$	4.9m/s ²	none																									
Shock resistance	Conforming to JIS B 3502, IEC61131-2 (147m/s ² , 3 times in each of 3 direction)																										
Operating ambience	No corrosive gas																										
Operating altitude	0 to 2000m ^{*3}																										
Installation location	Inside the control panel																										
Overvoltage category ^{*1}	II or less																										
Pollution degree ^{*2}	2 or less																										
Equipment category	Class I																										

*1 The overvoltage category of a device indicates which distributor in the range from public distribution network to. Machinery the device is assumed to be connected to. Category II applies to devices to which power is supplied from fixed facilities. The surge voltage of those devices is 2500V whose rated voltage is 300V.

*2 The index indicating the degree to which conductive substances are generated in the operating environment. Pollution level 2 indicates the environment that generates only nonconductive pollutants while allowing accidental condensation to cause temporary conduction.

*3 The module may fail and cannot be used in an environment in which the air is compressed to over the atmospheric pressure generated at an altitude of around 0m.

CAUTION

When a commercial peripheral device (such as a CF Card and USB device) is installed, satisfy the installation environment conditions specified for that device or those for the module, whichever are harder.

External Dimensions

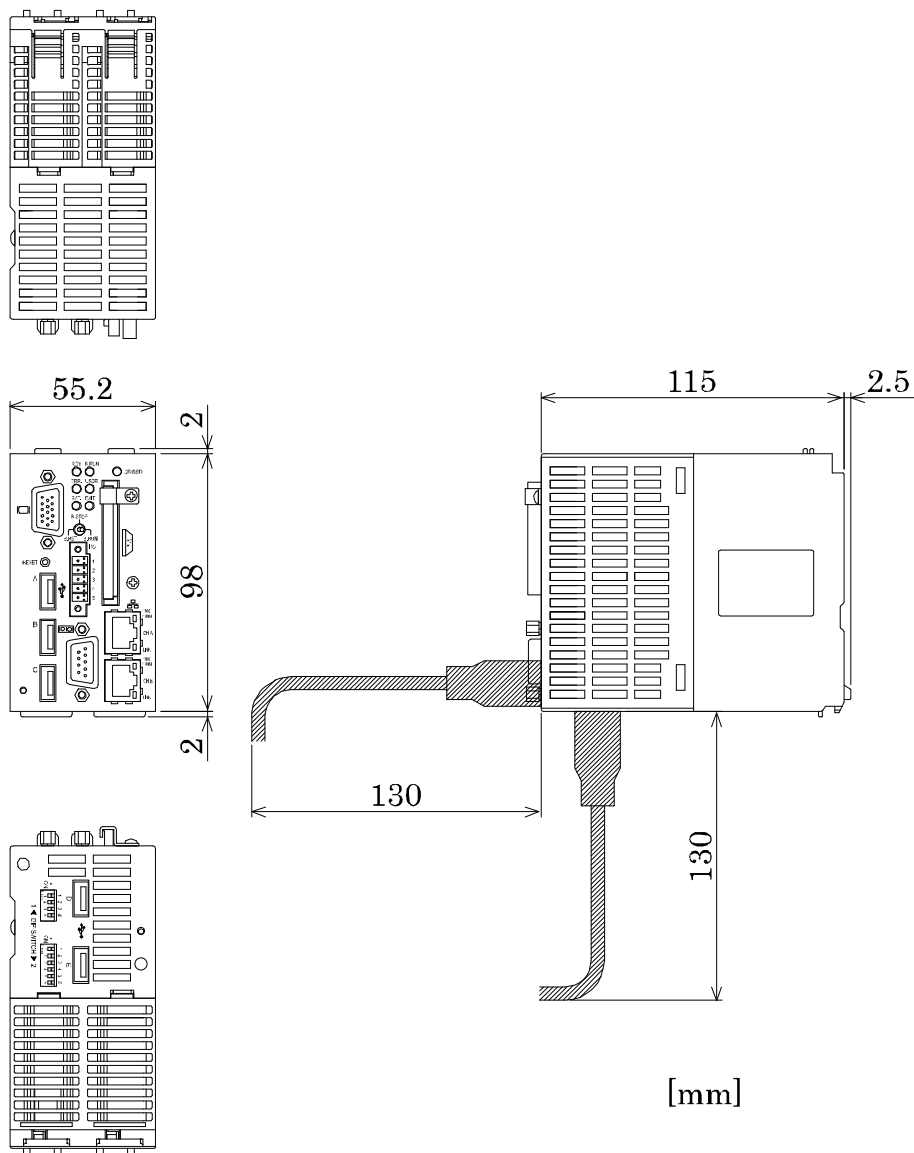


Figure 2.1 External dimensions

3. Hardware Setup

Before Using the Product for the First Time

Follow the next steps to set up this product:

This product works attached to the MELSEC-Q series base unit. MELSEC-Q series power supply module is also necessary in addition to the base unit.

For their specifications and the methods of installation and wiring, refer to manuals of each modules. (When using MELSEC products and MELSOFT products and you refer to their manuals and HELP, replace the description “PC CPU” with the description “MELSECWinCPU”.)

STEP1 By referring to the information in this chapter, install, connect and set this product.

STEP2 Connect cables.

Connect the cables of necessary external devices, such as a keyboard and a display, to this product using appropriate cables.

STEP3 Turn on the power.

After verifying that you have correctly followed steps 1 and 2, turn on the power.

If you find any abnormality after turning on the power, turn it off and check to see if the setup has been performed properly.

STEP4 Set up BIOS.

By referring to Chapter 4, set up BIOS. This setup requires a keyboard and a display.

* Before using this product, be sure to execute "LOAD SETUP DEFAULTS" to initialize the BIOS settings to their default values.

(Refer to Chapter 4, "Main Menu.")

Note that this product occupies two slots in the base unit.

CAUTION

- Before installing or uninstalling this product, be sure to turn the power off.
 - Installing or uninstalling this product while the power is on can cause a fault or malfunction.
 - Be sure to connect a keyboard and a mouse to it before turning the power on for the first time.
-

Installing the Module

- For the environment and the position to install this product, refer to “QCPU User's Manual (Hardware Design, Maintenance and Inspection)”.
- Before installing this product, remove the transparent protective sheet from the rear panel (which comes into contact with the base unit).
- Fit the module fixing hook in the module fixing slot in the base unit, then push the module in the direction of the arrow to mount the module on the base unit.

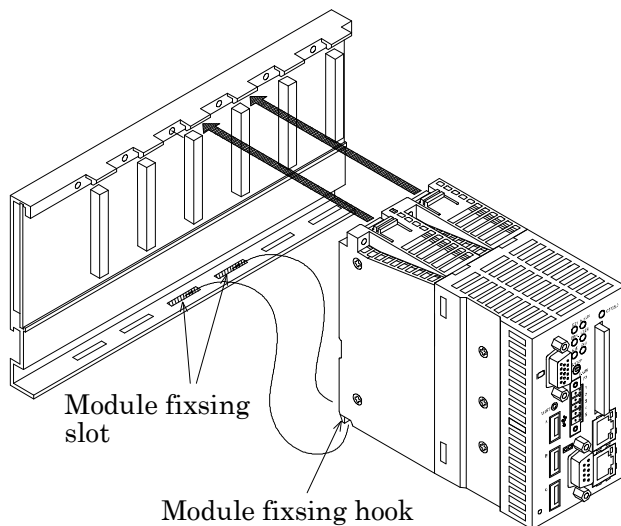


Figure 3.1 Installing the Module 1

⚠ CAUTION

Be sure to turn off the power to this product before installing it.

- To use this product in a place subject to much vibration or shock, use two screws to fasten it to the base unit as illustrated below.

Module fixing screws: M3 × 12 (Prepared by the user)

Tighten the screws within the following torque range :

Tightening torque range	36 - 48N cm
-------------------------	-------------

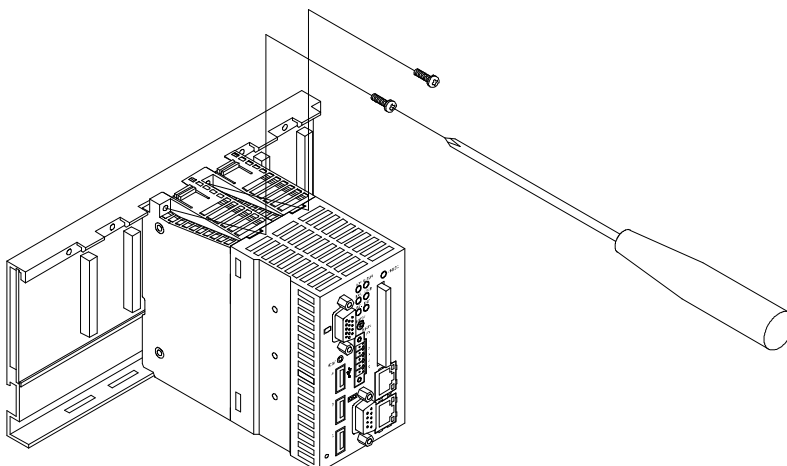


Figure3.2 Installing the Module 2

Uninstalling the Module

- If this product has been fastened with module fixing screws, remove them first (1).
While pressing the protrusions (2) on top of this product, pull this product toward you by the upper side (3). Lift this product to remove the module fixing hook from the module fixing slot (4).

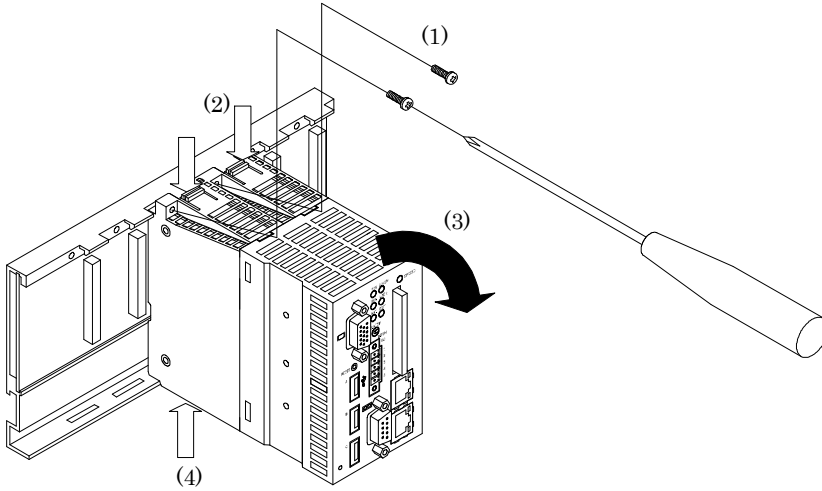


Figure 3.3 Uninstalling the Module

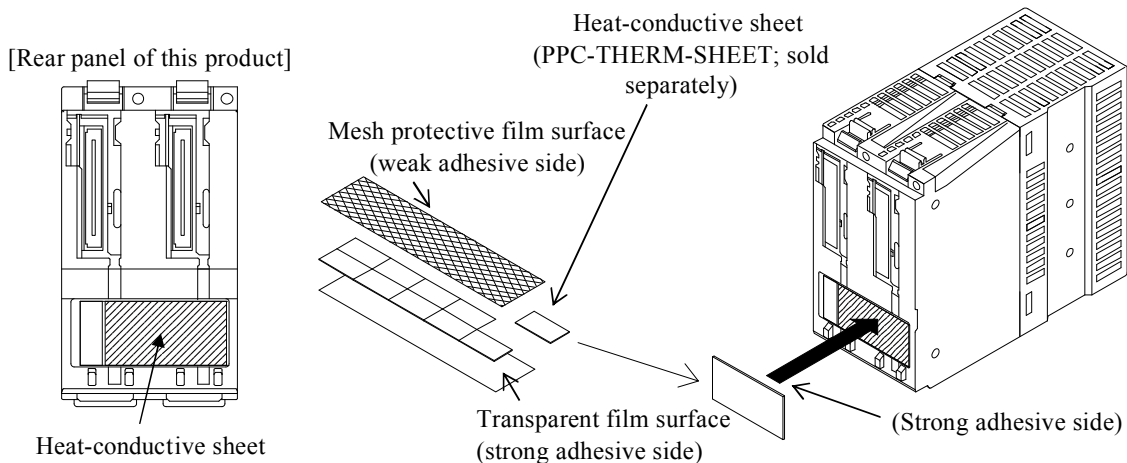
⚠ CAUTION

Be sure to turn off the power to this product before uninstalling it. If the OS is still up and running when you attempt to turn the power off, shut down the OS before turning the power off.

⚠ CAUTION

A heat-conductive sheet is affixed to the rear panel of this product. In the rare case that the heat-conductive sheet is damaged when this product is removed from the base unit, affix a new heat-conductive sheet (PPC-THERM-SHEET; sold separately) in place of the damaged sheet before using this product. The front and back of the heat-conductive sheet have different levels of adhesive strength. The adhesive is stronger on the side that has the transparent film. To switch the affixed sheet, first remove the entirety of the damaged sheet, and then affix to this product the strong adhesive side of the new sheet.

Before installing this product, remove the transparent protective sheet from the rear panel (which comes into contact with the base unit).



Installing the fitting to fix a CF card

After the insertion of a CF card, install the fitting to fix a CF card as follows.

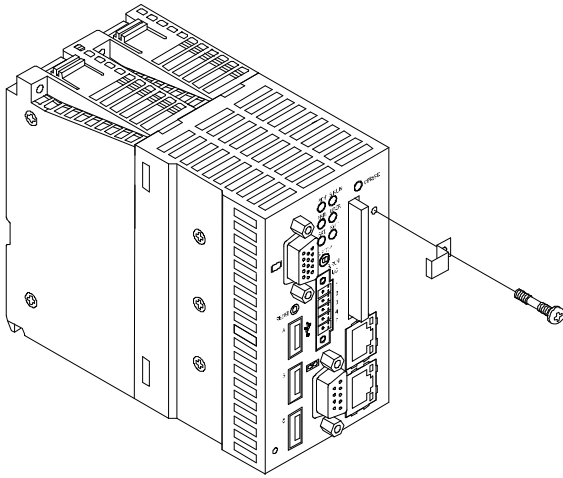


Figure 3.4 Installing the fitting to fix a CF card

The hole to attach the binding tie

The binding tie can be installed as follows in order to keep USB cables from falling out.
[A recommended binding tie: RSG-100 V0 (Kitagawa Industries)]

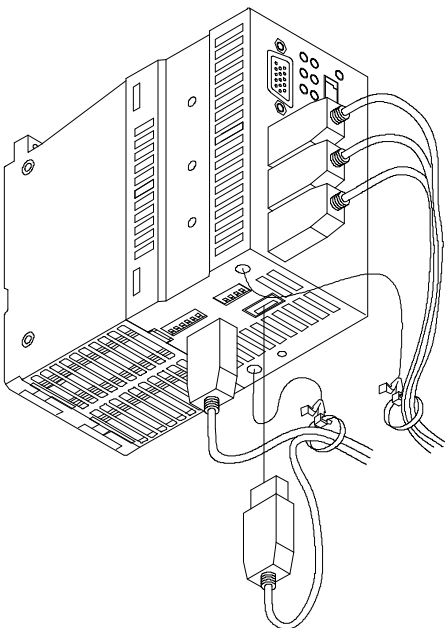


Figure 3.5 The hole to attach the binding tie

4. BIOS Setup

BIOS Setup

BIOS Setup allows you to make various settings upon startup. When you use the Module for the first time, be sure to execute this program. Once you have executed the program, the settings you made are backed up to be retained.

Introduction

This chapter discusses Award's Setup program built into the FLASH ROM BIOS. The Setup program allows users to modify the basic system configuration. This special information is then stored in battery-backed RAM so that it retains the Setup information when the power is turned off.

The rest of this chapter is intended to guide you through the process of configuring your system using Setup.

Starting Setup

The Award BIOS is immediately activated when you first power on the computer. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:

- By pressing immediately after switching the system on, or
- By pressing the key when the following message appears briefly at the bottom of the screen during the POST (Power On Self-Test).

Press DEL to enter SETUP.





If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>+ <Alt>+ keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to.

Press F1 to continue, DEL to enter SETUP

Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the <PageUp> and <PageDown> keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Table 4.1. Using Setup

Key	Function
	Move to the previous item
	Move to the next item
	Move to the item on the left (menu bar)
	Move to the item on the right (menu bar)
<Enter>	Move to the item you desired
<Page Up>	Increase the numeric value or make changes
<Page Down>	Decrease the numeric value or make changes
<+>	Increase the numeric value or make changes
<->	Decrease the numeric value or make changes
<Esc>	Main Menu : Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu : Exit current page and return to Main Menu
<F1>	General help on Setup navigation keys
<F5>	Load previous values from CMOS
<F6>	Load the fail-safe defaults from BIOS default table
<F7>	Load the optimized defaults
<F10>	Save all the CMOS changes and exit

Getting Help

Press <F1> to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the <F1> key again.

In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AwardBIOS supports an override to the CMOS settings which resets your system to its defaults.

The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

A Final Note About Setup

The information in this chapter is subject to change without notice.

Main Menu

Once you enter the Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

Note that a brief description of each highlighted selection appears at the bottom of the screen.

Phoenix - AwardBIOS CMOS Setup Utility

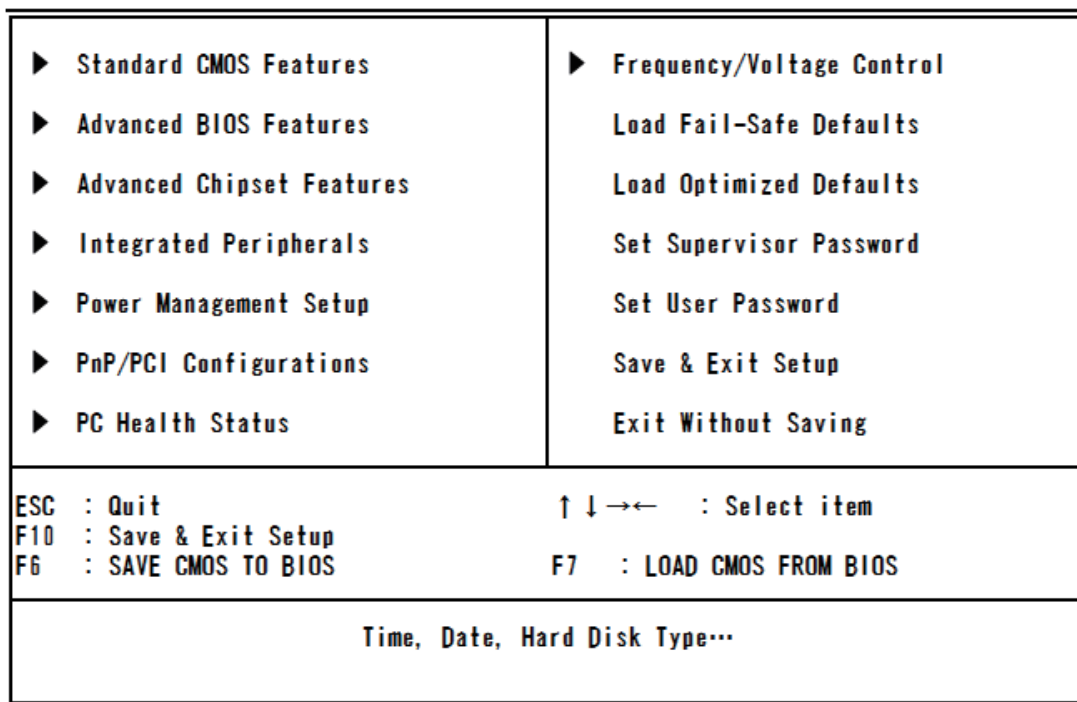


Figure 4.1 Main Menu

Setup Items

The main menu includes the following main setup categories.

Standard CMOS Features

Use this menu for basic system configuration.

Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PnP / PCI Configuration

Use this menu to specify your settings for PnP / PCI.

PC Health Status

Use this menu to show the environmental status of your system.

Frequency/Voltage Control

Use this menu to set the frequency and the voltage of system.

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

Set Supervisor Password

Use this menu to set Supervisor Passwords.

Set User Password

Use this menu to set User Passwords.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Save

Abandon all CMOS value changes and exit setup.

Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes zero, one or more than one setup items. Use the arrow keys to highlight the item and then use the <Page Up> or <Page Down> keys to select the value you want in each item.

Phoenix - AwardBIOS CMOS Setup Utility Standard CMOS Features

Date (mm:dd:yy)	Wed, Sep 1 2010	Item Help
Time (hh:mm:ss)	16 :18 :28	
▶ IDE Channel 0 Master	[None]	Menu level ▶
▶ IDE Channel 0 Slave	[None]	Change The day, month, year and century
▶ IDE Channel 1 Master	[None]	
Video	[EGA, VGA]	
Halt On	[All , But Keyboard]	
Base Memory	639K	
Extended Memory	1038336K	
Total Memory	1039360K	

↑ ↓ → ← : Move Enter : Select +/- / PU / PD : Value F10 : Save ESC : Exit F1 : General Help
F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults

Figure 4.2 Standard CMOS Features

Main Menu Selections

This table shows the selections that you can make on the Main Menu.

Table 4.2 Main Menu Selections

Item	Options	Description
Date	Month DD YYYY	Set the system date. Note that the 'Day' automatically changes when you set the date
Time	HH: MM: SS	Set the system time
IDE Channel 0 Master	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
IDE Channel 0 Slave	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
IDE Channel 1 Master	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device
Halt On	All Errors No Errors All, But Keyboard	Select the situation in which you want the BIOS to stop the POST process and notify you
Base Memory	Displays the amount of conventional memory automatically.	Displays the amount of conventional memory detected during boot up
Extended Memory	Displays the amount of extended memory automatically.	Displays the amount of extended memory detected during boot up
Total Memory	Displays the amount of total memory automatically.	Displays the total memory available in the system

IDE Adapters

The IDE adapters control the hard disk. Use a separate sub menu to configure each hard disk.

Use the legend keys to navigate through this menu and exit to the main menu. Use Table 4.3 to configure the hard disk.

Table 4.3 IDE Adapters configurations

Item	Options	Description
IDE HDD Auto-Detection	Press Enter	Press Enter to auto-detect the hard disk on this channel. If detection is successful, it fills the remaining fields on this menu.
IDE Channel 0/1 Master/Slave	None Auto Manual	Selects the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc. Selecting "Manual" lets you set the re-maining fields on this screen. Note: PRECOMP=65535 means NONE.
Access Mode	CHS LBA Large Auto	Choose the access mode for this hard disk.
Capacity	Automatically shows the capacity of HDD.	Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk checking program.
The following options are selectable only if the 'IDE Channel 0/2 Master/Slave' item is set to 'Manual' and "Access Mode" item is set to "CHS".		
Cylinder	Min = 0 Max = 65535	Set the number of cylinders for this hard disk.
Head	Min = 0 Max = 255	Set the number of heads for this hard disk.
Precomp	Min = 0 Max = 65535	**** Warning: Setting a value of 65535 means no hard disk.
Landing Zone	Min = 0 Max = 65535	****
Sector	Min = 0 Max = 255	Number of sectors per track

Advanced BIOS Features Setup

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

Phoenix - AwardBIOS CMOS Setup Utility Advanced BIOS Features

▶ CPU Feature	[Press Enter]	Item Help
▶ Hard Disk Boot Priority	[Press Enter]	
Virus Warning	[Disabled]	Menu level ▶
CPU L3 Cache	[Enabled]	
Hyper-Threading Technology	[Enabled]	
Quiet Post	[Disabled]	
Quick Power On Self Test	[Enabled]	
USB Device Wait	[Disabled]	
First Boot Device	[Removable]	
Second Boot Device	[CDROM]	
Third Boot Device	[Hard Disk]	
Boot Ohter Device	[Enabled]	
Boot Up NumLock Status	[On]	
Gate A20 Option	[Fast]	
Typematic Rate Setting	[Disabled]	
x Typematic Rate (Chars/Sec)	6	
x Typematic Delay (Msec)	250	
Security Option	[Setup]	
x APIC Mode	Enabled	
MPS Version Control For OS	[1.4]	
BEEP Voice	[Enabled]	
WDT Protect	[Disabled]	
POST Code Show	[Disabled]	
CF Backup	[Press Enter]	

↑ ↓ → ← : Move Enter : Select +/- / PU / PD : Value F10 : Save ESC : Exit F1 : General Help
F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults

Figure 4.3 Advanced BIOS Features Setup

CPU Feature

Press <Enter> to configure the settings relevant to CPU Feature.

Phoenix - AwardBIOS CMOS Setup Utility
CPU Feature

<pre> PPM Mode [Native Mode] Limit CPUID Maxval [Disabled] C1E Function [Disabled] CPU C State Capability [Disable] Execute Disable Bit [Enabled] </pre>	<p style="text-align: center;">Item Help</p> <hr/> <p>Menu level ▶</p>
--	--

↑ ↓ → ← : Move Enter : Select +/- / PU / PD : Value F10 : Save ESC : Exit F1 : General Help
 F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults

Figure 4.4 CPU Feature

Table 4.4 CPU Features select

Description	Choice
<p>PPM Mode</p> <p>Select PPM Mode.</p> <p>When using OS which supports ACPI, select “Native Mode”. When using elder OS such as Windows 98 and Me, select “SMM Mode”.</p>	<div style="border: 1px solid black; padding: 5px; margin: 0 auto; width: 80%;"> <p>PPM Mode</p> <hr/> <p>Native Mode [■]</p> <p>SMM Mode []</p> <hr/> <p>↑ ↓ : Move ENTER : Accept ESC : Abort</p> </div>

Description	Choice
<p>Limit CPUID MaxVal</p> <p>Select Disabled / Enabled of Limit CPUID Maxval. For older OS such as Windows 98 and Me, select “Enabled”. If not, the maximum value of CPUID can not be handled.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Limit CPUID MaxVal</p> <p>Disabled <input checked="" type="checkbox"/></p> <p>Enabled <input type="checkbox"/></p> <p style="text-align: center;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>
<p>C1E Function</p> <p>Select C1E Function.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>C1E Function</p> <p>Auto <input type="checkbox"/></p> <p>Disabled <input checked="" type="checkbox"/></p> <p style="text-align: center;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>
<p>CPU C State Capability</p> <p>Select CPU C State Capability. Selecting any values other than “Disabled” can reduce the power consumption when CPU idles.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>CPU C State Capability</p> <p>Disable <input checked="" type="checkbox"/></p> <p>C2 <input type="checkbox"/></p> <p>C4 <input type="checkbox"/></p> <p style="text-align: center;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>
<p>Execute Disable Bit</p> <p>Select Enabled / Disabled of Execute Disable Bit. Selecting “Disabled” makes XD function flag to be 0 by force.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Execute Disable Bit</p> <p>Enabled <input type="checkbox"/></p> <p>Disabled <input checked="" type="checkbox"/></p> <p style="text-align: center;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>

Hard Disk Boot Priority

With the field, there is the option to choose, aside from the hard disks connected, "Bootable add-in Cards" which refers to other external device.

The following figure shows the factory settings of the -CFJ and -CFE models. A CF card is not inserted in the -J and -E models, so "Ch1 M." is not displayed. The CF card model is displayed in place of "xxxxx".

Phoenix - AwardBIOS CMOS Setup Utility
Hard Disk Boot Priority

<pre> 1. Ch1 M. : xxxxx 2. Ch0 M. : 4GB NANDrive 3. Bootable Add-in Cards </pre>	<p>Item Help</p> <hr/> <p>Menu Level ▶</p> <p>Use <↑> or <↓> to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.</p>
--	--

↑↓↔:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
 F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Figure 4.5 Hard Disk Boot Priority

Virus Warning

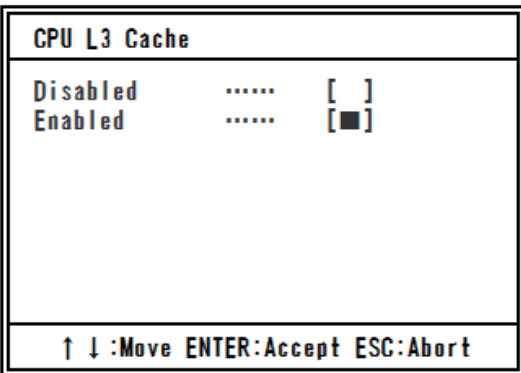
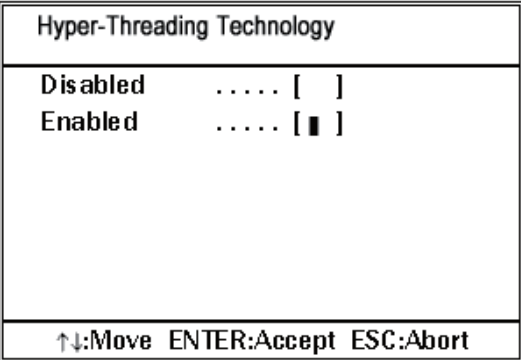
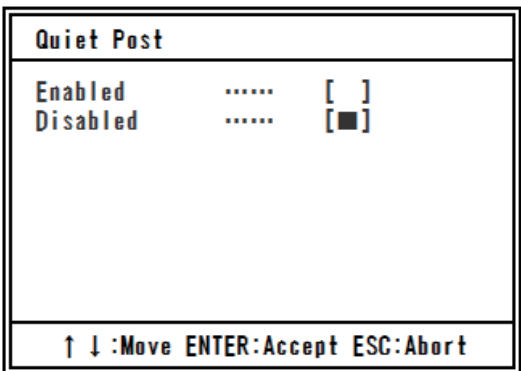
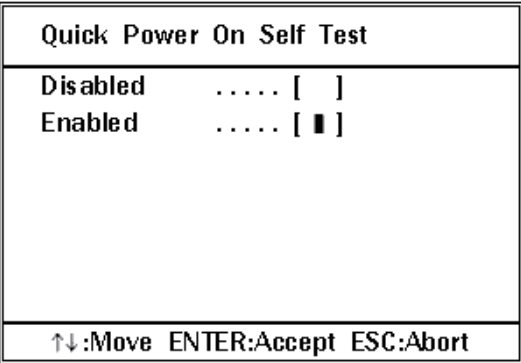
When enabled, you receive a warning message if a program (specifically, a virus) attempts to write to the boot sector or the partition table of the hard disk drive. You should then run an anti-virus program. Keep in mind that this feature protects only the boot sector, not the entire hard drive.

⚠ CAUTION

Many disk diagnostic programs that access the boot sector table can trigger the virus warning message. If you plan to run such a program, we recommend that you first disable the virus warning.

Enabled	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Disabled	No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

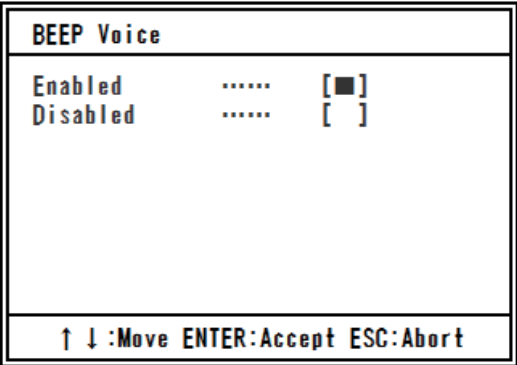
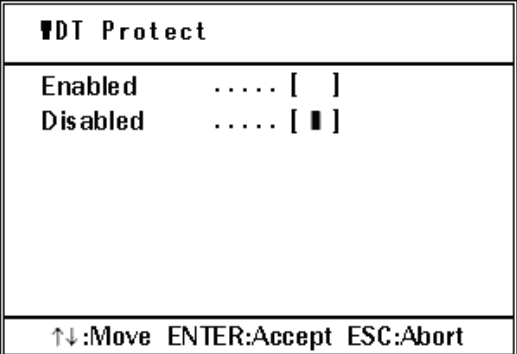
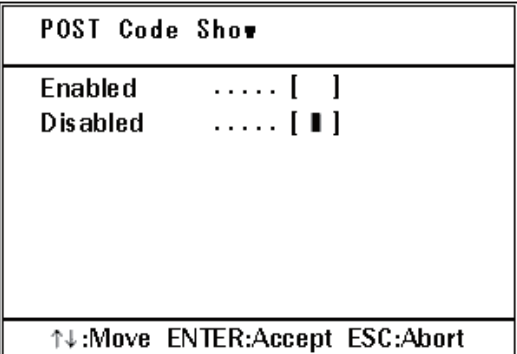
Table 4.5 Advance BIOS Feature select

Description	Choice
<p>CPU L3 Cache</p> <p>Select Disabled / Enabled of CPU L3 Cache. Selecting “Enabled” makes the speed of memory access higher.</p>	
<p>Hyper-Threading Technology</p> <p>Select Disabled / Enabled of Hyper-Threading Technology.</p>	
<p>Quiet Post</p> <p>Select Disabled / Enabled of Quiet Post. Selecting “Enabled” makes the self-test of a memory and some devices simpler. Therefore the wake-up time becomes shorter. If selecting “Disabled”, the self-test will not be simplified.</p>	
<p>Quick Power On Self Test</p> <p>Select Disabled / Enabled of Quick Power On SelfTest. Selecting “Enabled” makes POST (the self-test when turning power on) simpler. Therefore the wake-up time becomes shorter. But we recommend selecting “Disabled” . Because POST will not be processed for all the system if not. If some troubles happen on POST, specify them in order to avoid the loss of data while working.</p>	

Description	Choice																		
<p>USB Device Wait</p> <p>Select USB Device Wait.</p> <p>This menu sets the BIOS waiting time till the access for USB devices starts.</p> <p>If you can not boot the system in order because of the USB devices which need the long time to start, use this function. (The boot-time of system will be as long as the time you set)</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">USB Device Wait</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Disabled</td> <td style="width: 20%;">.....</td> <td style="width: 20%;">[■]</td> </tr> <tr> <td>5 Sec</td> <td>.....</td> <td>[]</td> </tr> <tr> <td>10 Sec</td> <td>.....</td> <td>[]</td> </tr> <tr> <td>20 Sec</td> <td>.....</td> <td>[]</td> </tr> <tr> <td>30 Sec</td> <td>.....</td> <td>[]</td> </tr> <tr> <td>60 Sec</td> <td>.....</td> <td>[]</td> </tr> </table> <p style="text-align: center; margin-top: 10px;">↑↓ :Move ENTER:Accept ESC:Abort</p> </div>	Disabled	[■]	5 Sec	[]	10 Sec	[]	20 Sec	[]	30 Sec	[]	60 Sec	[]
Disabled	[■]																	
5 Sec	[]																	
10 Sec	[]																	
20 Sec	[]																	
30 Sec	[]																	
60 Sec	[]																	
<p>First Boot Device</p> <p>Select First Boot Device.</p> <p>BIOS try to load operating system from devices according to the order specified by this item.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">First Boot Device</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Removable</td> <td style="width: 20%;">.....</td> <td style="width: 20%;">[■]</td> </tr> <tr> <td>Hard Disk</td> <td>.....</td> <td>[]</td> </tr> <tr> <td>CDROM</td> <td>.....</td> <td>[]</td> </tr> <tr> <td>Disabled</td> <td>.....</td> <td>[]</td> </tr> </table> <p style="text-align: center; margin-top: 10px;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>	Removable	[■]	Hard Disk	[]	CDROM	[]	Disabled	[]						
Removable	[■]																	
Hard Disk	[]																	
CDROM	[]																	
Disabled	[]																	
<p>Second Boot Device</p> <p>Select Second Boot Device.</p> <p>BIOS tries to load operating system from devices according to the order specified by this item.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Second Boot Device</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Removable</td> <td style="width: 20%;">.....</td> <td style="width: 20%;">[]</td> </tr> <tr> <td>Hard Disk</td> <td>.....</td> <td>[]</td> </tr> <tr> <td>CDROM</td> <td>.....</td> <td>[■]</td> </tr> <tr> <td>Disabled</td> <td>.....</td> <td>[]</td> </tr> </table> <p style="text-align: center; margin-top: 10px;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>	Removable	[]	Hard Disk	[]	CDROM	[■]	Disabled	[]						
Removable	[]																	
Hard Disk	[]																	
CDROM	[■]																	
Disabled	[]																	
<p>Third Boot Device</p> <p>Select Third Boot Device.</p> <p>BIOS tries to load operating system from devices according to the order specified by this item.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Third Boot Device</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Removable</td> <td style="width: 20%;">.....</td> <td style="width: 20%;">[]</td> </tr> <tr> <td>Hard Disk</td> <td>.....</td> <td>[■]</td> </tr> <tr> <td>CDROM</td> <td>.....</td> <td>[]</td> </tr> <tr> <td>Disabled</td> <td>.....</td> <td>[]</td> </tr> </table> <p style="text-align: center; margin-top: 10px;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>	Removable	[]	Hard Disk	[■]	CDROM	[]	Disabled	[]						
Removable	[]																	
Hard Disk	[■]																	
CDROM	[]																	
Disabled	[]																	

Description	Choice
<p>Boot Other Device</p> <p>Select Disabled / Enabled of Boot Other Device. If selecting “Enabled” , BIOS try to load operating system from other devices.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Boot Other Device</p> <p>Disabled []</p> <p>Enabled [■]</p> <hr/> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Boot Up NumLock Status</p> <p>Select Boot Up NumLock Status. It controls the condition of <NumLock> key on the start of the system.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Boot Up NumLock Status</p> <p>Off []</p> <p>On [■]</p> <hr/> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Gate A20 Option</p> <p>Select Gate A20 Option. It selects how to specify address for the memory which is larger then 1MB (extended memory). Selecting “Normal”, the gate A20 is controlled by the pin of keyboard controller. Selecting “Fast”, the gate A20 is controlled by the system chipset. For OS/2 and Windows, selecting “Fast” can make the speed of the system higher.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Gate A20 Option</p> <p>Normal []</p> <p>Fast [■]</p> <hr/> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Typematic Rate Setting</p> <p>Select Typematic Rate Setting. Selecting “Disabled” , the speed of typing is decided by the keyboard controller of the system. Selecting “Enabled”, you become able to select following 2 items (“Typematic Rate” and “Typematic Delay”)</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Typematic Rate Setting</p> <p>Disabled [■]</p> <p>Enabled []</p> <hr/> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Typematic Rate (Chars/Sec)</p> <p>Select Typematic Rate. You can select the input speed of characters when you keep one key pushed. If the item “Typematic Rate Setting” is set to “Enabled”, you become able to set this item.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Typematic Rate (Chars/Sec)</p> <p>6 [■]</p> <p>8 []</p> <p>10 []</p> <p>12 []</p> <p>15 []</p> <p>20 []</p> <p>24 []</p> <p>30 []</p> <hr/> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>

Description	Choice
<p>Typematic Delay (Msec)</p> <p>Select Typematic Delay. You can select the waiting time for continuous typing. If the item "Typematic Rate Setting" is set to "Enabled", you become able to set this item.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Typematic Delay (Msec)</p> <hr/> <p>250 [■]</p> <p>500 []</p> <p>750 []</p> <p>1000 []</p> <hr/> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Security Option</p> <p>Select Security Option when the security setting is enabled. Selecting "Setup", system will boot up but the access to the setup will be denied unless you input the correct password to its prompt. Selecting "System", system will not boot up and the access to the setup will be denied unless you input the correct password to its prompt.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Security Option</p> <hr/> <p>Setup [■]</p> <p>System []</p> <hr/> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Note: To disable security, select PASSWORD SETTING on the Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.</p>	
<p>APIC Mode</p> <p>You can not change this item. Advanced Programmable Interrupt Controller is fixed to "Enabled" .</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">APIC Mode</p> <hr/> <p>Enabled [■]</p> <hr/> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>MPS Version Control For OS</p> <p>Select MPS Version Control For OS. Select the version of multi-processor platform. Selecting "1.4" , the system get the support for multi-PCI-bus configuration and the extended configuration table for the future extensibility</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">MPS Version Control For OS</p> <hr/> <p>1.1 []</p> <p>1.4 [■]</p> <hr/> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>

Description	Choice
<p>BEEP Voice</p> <p>Select whether or not BEEP sounds when the system boots up.</p>	
<p>WDT Protect</p> <p>Select Enabled / Disabled of WDT Protect.</p> <p>Selecting "Enabled", WDT watches the system if the connected devices would lose its control or the boot of BIOS would stop because of unexpected factors such as accidental noise.</p> <p>When the boot of BIOS stops, the reset will be processed and the system reboots.</p>	
<p>Post Code Show</p> <p>Select Enabled / Disabled of Post Code Show</p> <p>Selecting "Enabled", the top-right area of the screen shows Post Code when BIOS is booting.</p> <p>But the display of Post Code will start after Graphic Device is initialized and the system is able to show images.</p>	
<p>CF Backup</p> <p>Selecting this option allows you to launch a tool for creating the backup of CF card and restoring it. This can be used to backup your current environment as it is. For the detailed procedure of CF Backup Feature, refer to "Appendix 5 Backup of built-in SSD"</p>	<p>---</p>

Advanced Chipset Features Setup

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

**Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features**

<p>DRAM Timing Selectable By SPD</p> <p>CAS Latency Time Auto</p> <p>DRAM RAS# to CAS# Delay Auto</p> <p>DRAM RAS# Precharge Auto</p> <p>Precharge delay (tRAS) Auto</p> <p>System Memory Frequency By SPD</p> <p>System BIOS Cacheable [Enabled]</p> <p>Memory Hole At 15-16M [Disabled]</p> <p>** VGA Setting **</p> <p>On-Chip Frame Buffer Size [8MB]</p> <p>DVMT Mode [Enable]</p> <p>Total GFX Memory [128MB]</p>	<p>Item Help</p> <hr/> <p>Menu level ►</p>
---	---

↑ ↓ → ← : Move Enter : Select +/- / PU / PD : Value F10 : Save ESC : Exit F1 : General Help
F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults

Figure 4.6 Advanced Chipset Features Setup

Table 4.6 Advance Chipset Feature select

Description	Choice								
<p>DRAM Timing Selectable</p> <p>Select DRAM Timing Selectable.</p> <p>This item should be different values according to the parameter of the installed memory chip (DRAM).</p> <p>Do not change the value of factory settings unless you have installed new memory whose speed is different from the original DRAM.</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">DRAM Timing Selectable</td> </tr> <tr> <td>Manual</td> <td style="text-align: right;">..... []</td> </tr> <tr> <td>By SPD</td> <td style="text-align: right;">..... [■]</td> </tr> <tr> <td colspan="2" style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</td> </tr> </table>	DRAM Timing Selectable		Manual []	By SPD [■]	↑↓:Move ENTER:Accept ESC:Abort	
DRAM Timing Selectable									
Manual []								
By SPD [■]								
↑↓:Move ENTER:Accept ESC:Abort									

Description	Choice																								
<p>CAS Latency Time</p> <p>Select CAS Latency Time. Select the number of clock in CAS waiting time. When Synchronous DRAM is installed, the number of clock in CAS waiting time is different according to DRAM timing.</p> <p>Do not change the default value of factory settings.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">GAS Latency Time</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Auto</td> <td style="width: 30%;">.....</td> <td style="width: 40%; text-align: right;">[■]</td> </tr> <tr> <td>3</td> <td>.....</td> <td style="text-align: right;">[]</td> </tr> <tr> <td>4</td> <td>.....</td> <td style="text-align: right;">[]</td> </tr> <tr> <td>5</td> <td>.....</td> <td style="text-align: right;">[]</td> </tr> </table> <p style="text-align: center; font-weight: bold;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>	Auto	[■]	3	[]	4	[]	5	[]												
Auto	[■]																							
3	[]																							
4	[]																							
5	[]																							
<p>DRAM RAS# to CAS# Delay</p> <p>Select DRAM RAS# to CAS# Delay. Select the timing delay between CAS and RAS strobe signal which are used when DRAM is read, written or updated. When setting it to high speed, the performance gets higher. When setting it to low speed, the performance gets more reliable. It is applied only when synchronous DRAM is installed to the system.</p> <p>Do not change the default value of factory settings.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">DRAM RAS# to CAS# Delay</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Auto</td> <td style="width: 30%;">.....</td> <td style="width: 40%; text-align: right;">[■]</td> </tr> <tr> <td>3</td> <td>.....</td> <td style="text-align: right;">[]</td> </tr> <tr> <td>4</td> <td>.....</td> <td style="text-align: right;">[]</td> </tr> <tr> <td>5</td> <td>.....</td> <td style="text-align: right;">[]</td> </tr> <tr> <td>6</td> <td>.....</td> <td style="text-align: right;">[]</td> </tr> </table> <p style="text-align: center; font-weight: bold;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>	Auto	[■]	3	[]	4	[]	5	[]	6	[]									
Auto	[■]																							
3	[]																							
4	[]																							
5	[]																							
6	[]																							
<p>DRAM RAS# Precharge</p> <p>Select DRAM RAS# Precharge. Select the number of clock needed to charge RAS till DRAM is refreshed. If this value is not enough, the update may become incomplete. In this case, DRAM can not hold its data.</p> <p>Do not change the default value of factory settings.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">DRAM RAS# Precharge</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Auto</td> <td style="width: 30%;">.....</td> <td style="width: 40%; text-align: right;">[■]</td> </tr> <tr> <td>3</td> <td>.....</td> <td style="text-align: right;">[]</td> </tr> <tr> <td>4</td> <td>.....</td> <td style="text-align: right;">[]</td> </tr> <tr> <td>5</td> <td>.....</td> <td style="text-align: right;">[]</td> </tr> <tr> <td>6</td> <td>.....</td> <td style="text-align: right;">[]</td> </tr> </table> <p style="text-align: center; font-weight: bold;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>	Auto	[■]	3	[]	4	[]	5	[]	6	[]									
Auto	[■]																							
3	[]																							
4	[]																							
5	[]																							
6	[]																							
<p>Precharge delay (tRAS)</p> <p>Select Precharge delay (tRAS). Select the number of DRAM clock for the precharge delay time.</p> <p>Do not change the default value of factory settings.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Precharge delay (tRAS)</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Auto</td> <td style="width: 30%;">.....</td> <td style="width: 40%; text-align: right;">[■]</td> </tr> <tr> <td>9</td> <td>.....</td> <td style="text-align: right;">[]</td> </tr> <tr> <td>10</td> <td>.....</td> <td style="text-align: right;">[]</td> </tr> <tr> <td>11</td> <td>.....</td> <td style="text-align: right;">[]</td> </tr> <tr> <td>12</td> <td>.....</td> <td style="text-align: right;">[]</td> </tr> <tr> <td>13</td> <td>.....</td> <td style="text-align: right;">[]</td> </tr> <tr> <td>14</td> <td>.....</td> <td style="text-align: right;">[]</td> </tr> <tr> <td>15</td> <td>.....</td> <td style="text-align: right;">[]</td> </tr> </table> <p style="text-align: center; font-weight: bold;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>	Auto	[■]	9	[]	10	[]	11	[]	12	[]	13	[]	14	[]	15	[]
Auto	[■]																							
9	[]																							
10	[]																							
11	[]																							
12	[]																							
13	[]																							
14	[]																							
15	[]																							

Description	Choice
<p>System Memory Frequency</p> <p>Select System Memory Frequency. Select the frequency of main memory.</p> <p>Do not change the default value of factory settings.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">System Memory Frequency</p> <p>By SPD [<input checked="" type="checkbox"/>] 667MHz [] 800MHz []</p> <p style="text-align: center;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>
<p>System BIOS Cacheable</p> <p>Select Disabled / Enabled of System BIOS Cacheable. Selecting “Enabled” allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may happen.</p> <p>Do not change the default value of factory settings.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">System BIOS Cacheable</p> <p>Disabled [] Enabled [<input checked="" type="checkbox"/>]</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Memory Hole At 15M-16M</p> <p>Select Disabled / Enabled of Memory Hole At 15M - 16M.</p> <p>Do not change the default value of factory settings.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Memory Hole At 15M-16M</p> <p>Disabled..... [<input checked="" type="checkbox"/>] Enabled []</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>

VGA Setting

The field under the On-Chip VGA Setting and their defaults settings are:

Table 4.7 VGA Setting select

Description	Choice
<p>On-Chip Frame Buffer Size</p> <p>Select the size of writing buffer between CPU and PCI.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">On-Chip Frame Buffer Size</p> <hr/> <p>1MB []</p> <p>8MB [■]</p> <hr/> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>DVMT Mode</p> <p>Select Disabled / Enabled of DVMT (Dynamic Video Memory Technology) Mode.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">DVMT Mode</p> <hr/> <p>Disable []</p> <p>Enable [■]</p> <hr/> <p style="text-align: center;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>
<p>Total GFX Memory</p> <p>Select Total GFX Memory.</p> <p>Select the total memory size of graphics.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Total GFX Memory</p> <hr/> <p>128MB [■]</p> <p>256MB []</p> <p>MAX []</p> <hr/> <p style="text-align: center;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>

Integrated Peripherals

This section sets configurations for your hard disk and other integrated peripherals. The first screen shows four main items for user to select. Once an item is selected, a submenu appears. Details follow.

Phoenix - AwardBIOS CMOS Setup Utility
Integrated peripherals

▶ OnChip IDE Device	[Press Enter]	Item Help
▶ Onboard Device	[Press Enter]	
▶ SuperIO Device	[Press Enter]	Menu level ▶
▶ USB Device Setting	[Press Enter]	

↑ ↓ → ← : Move Enter : Select +/- / PU / PD : Value F10 : Save ESC : Exit F1 : General Help
F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults

Figure 4.7 Integrated Peripherals

OnChip IDE Device

Phoenix - AwardBIOS CMOS Setup Utility
OnChip IDE Device

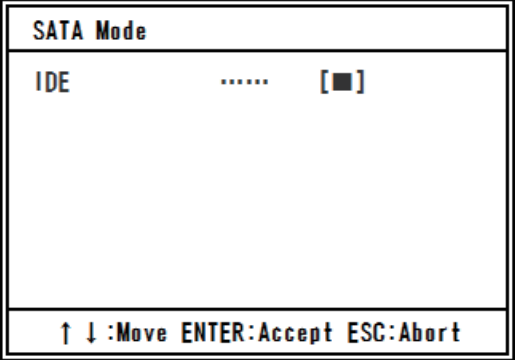
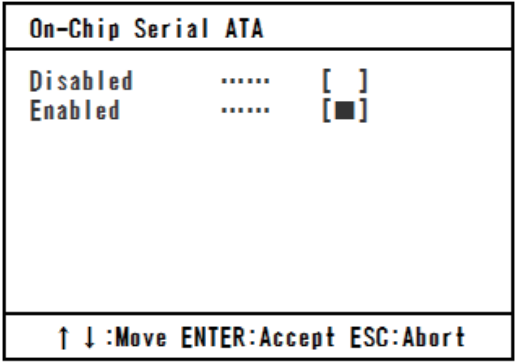
<pre>*** On-Chip Serial ATA Setting *** SATA Mode [IDE] On-Chip Serial ATA [Enabled]</pre>	<p>Item Help</p> <hr/> <p>Menu level ▶</p>
---	--

↑ ↓ → ← : Move Enter : Select +/- / PU / PD : Value F10 : Save ESC : Exit F1 : General Help
F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults

Figure 4.8 On Chip IDE Device

On Chip Serial ATA Setting

Table 4.8 On Chip Serial ATA Setting select

Description	Choice
<p>SATA Mode</p> <p>Select SATA Mode. Only “IDE” is supported.</p>	
<p>On-Chip Serial ATA</p> <p>Select On-Chip Serial ATA. Selecting “Disabled”, SATA controller becomes disabled. Selecting “Enabled”, SATA works in the legacy mode.</p>	

Onboard Device

Phoenix - AwardBIOS CMOS Setup Utility Onboard Device

Onboard LAN A	[Enabled]	Item Help
Onboard LAN B	[Enabled]	
		Menu level ▶

↑ ↓ → ← : Move Enter : Select +/- / PU / PD : Value F10 : Save ESC : Exit F1 : General Help
F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults

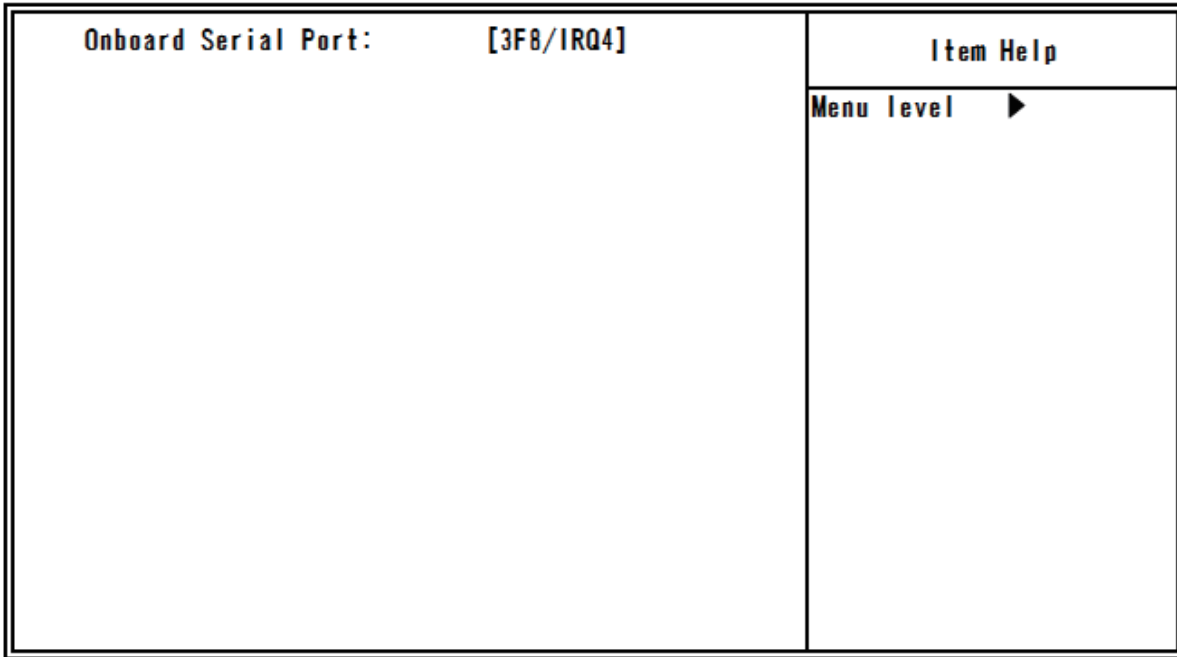
Figure 4.9 Onboard Device

Table 4.9 Onboard Device select

Description	Choice												
Onboard LAN A Select Disabled / Enabled of Onboard LAN A.	<table border="1"> <tr> <td colspan="3">Onboard LAN A</td> </tr> <tr> <td>Enabled</td> <td>.....</td> <td>[■]</td> </tr> <tr> <td>Disabled</td> <td>.....</td> <td>[]]</td> </tr> <tr> <td colspan="3">↑ ↓ : Move ENTER : Accept ESC : Abort</td> </tr> </table>	Onboard LAN A			Enabled	[■]	Disabled	[]]	↑ ↓ : Move ENTER : Accept ESC : Abort		
Onboard LAN A													
Enabled	[■]											
Disabled	[]]											
↑ ↓ : Move ENTER : Accept ESC : Abort													
Onboard LAN B Select Disabled / Enabled of Onboard LAN B.	<table border="1"> <tr> <td colspan="3">Onboard LAN B</td> </tr> <tr> <td>Enabled</td> <td>.....</td> <td>[■]</td> </tr> <tr> <td>Disabled</td> <td>.....</td> <td>[]]</td> </tr> <tr> <td colspan="3">↑ ↓ : Move ENTER : Accept ESC : Abort</td> </tr> </table>	Onboard LAN B			Enabled	[■]	Disabled	[]]	↑ ↓ : Move ENTER : Accept ESC : Abort		
Onboard LAN B													
Enabled	[■]											
Disabled	[]]											
↑ ↓ : Move ENTER : Accept ESC : Abort													

Super IO Device

Phoenix - AwardBIOS CMOS Setup Utility
SuperIO Device



↑ ↓ → ← : Move Enter : Select +/- / PU / PD : Value F10 : Save ESC : Exit F1 : General Help
F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults

Figure 4.10 SuperIO Device

Table 4.10 Super I/O device select

Description	Choice
<p>Onboard Serial Port</p> <p>Select Onboard Serial Port. Select the address and the IRQ to use of a serial port.</p>	

USB Device Setting

Phoenix - AwardBIOS CMOS Setup Utility
USB Device Setting

USB 1.0 Controller [Enabled] USB 2.0 Controller [Enabled] USB Operation Mode [High Speed] USB Keyboard Function [Disabled] USB Storage Function [Enabled] *** USB Mass Strage Device Boot Setting ***	Item Help Menu level ▶
---	---------------------------

↑ ↓ → ← : Move Enter : Select +/- / PU / PD : Value F10 : Save ESC : Exit F1 : General Help
 F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults

Figure 4.11 USB Device Setting

Table 4.11 USB Device Setting select

Description	Choice
USB 1.0 Controller Select Disabled / Enabled of USB 1.0 Controller. Normally select "Enable" .	<div style="border: 1px solid black; padding: 5px;"> <p>USB 1.0 Controller</p> <p>Disabled [] Enabled [■]</p> <p>↑ ↓ : Move ENTER : Accept ESC : Abort</p> </div>
USB 2.0 Controller Select Disabled / Enabled of USB 2.0 Controller. Normally select "Enable" .	<div style="border: 1px solid black; padding: 5px;"> <p>USB 2.0 Controller</p> <p>Disabled [] Enabled [■]</p> <p>↑ ↓ : Move ENTER : Accept ESC : Abort</p> </div>

Description	Choice
<p>USB Operation Mode</p> <p>Select USB Operation Mode.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>USB Operation Mode</p> <p>Full/Low Speed [<input type="checkbox"/>]</p> <p>High Speed [<input checked="" type="checkbox"/>]</p> <p style="text-align: center;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>
<p>USB Keyboard Function</p> <p>Select Disabled / Enabled of USB Keyboard Function. If you use a USB keyboard on the OS which does not support USB, select "Enabled". For the OS which supports USB, select "Disabled".</p>	<div style="border: 1px solid black; padding: 5px;"> <p>USB Keyboard Function</p> <p>Disabled [<input checked="" type="checkbox"/>]</p> <p>Enabled [<input type="checkbox"/>]</p> <p style="text-align: center;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>
<p>USB Storage Function</p> <p>Select Disabled / Enabled of USB Storage Function. When using USB storages, select "Enabled".</p>	<div style="border: 1px solid black; padding: 5px;"> <p>USB Storage Function</p> <p>Disabled [<input type="checkbox"/>]</p> <p>Enabled [<input checked="" type="checkbox"/>]</p> <p style="text-align: center;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>

Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy while operating in a manner consistent with your own style of computer use.

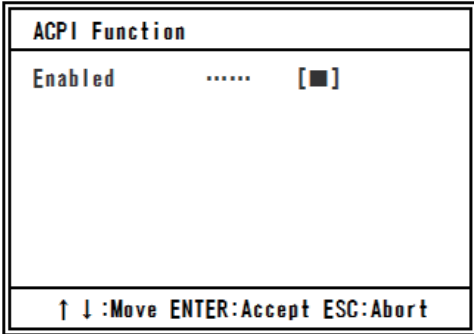
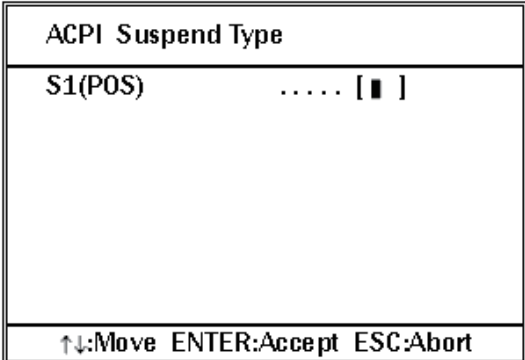
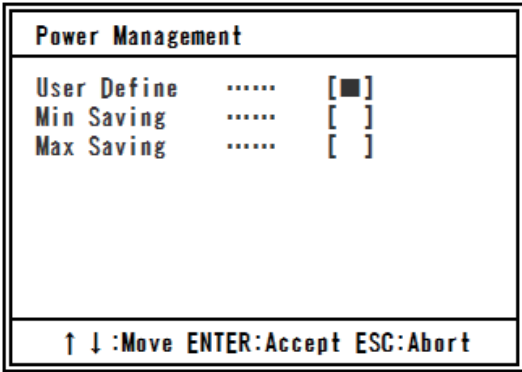
Phoenix - AwardBIOS CMOS Setup Utility Power Management Setup

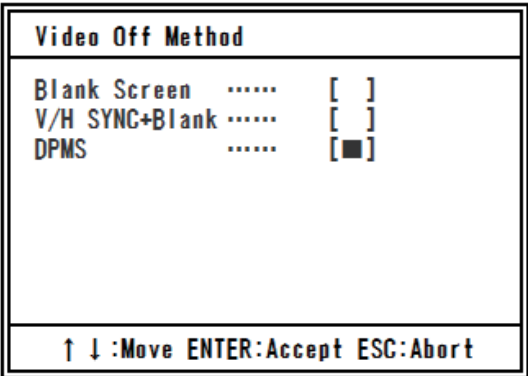
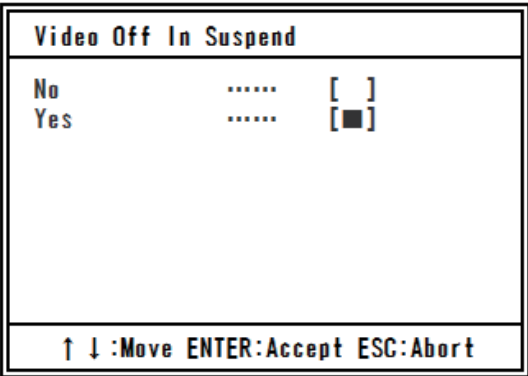
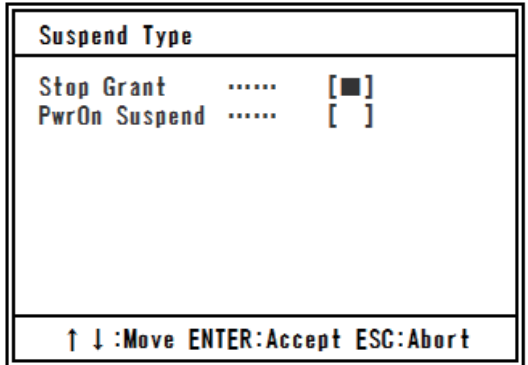
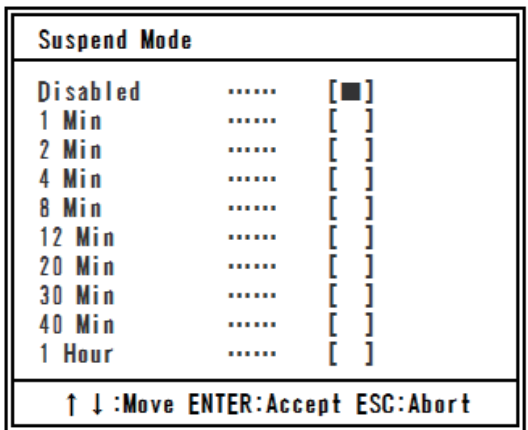
ACPI Function	Enabled	Item Help
ACPI Suspend Type	S1(POS)	
Power Management	[User Define]	Menu level ▶
Video Off Method	[DPMS]	
Video Off In Suspend	[Yes]	
Suspend Type	[Stop Grant]	
Suspend Mode	[Disabled]	
** Reload Global Timer Events **		
COM Port	[Disabled]	
HPET Support	[Enabled]	
HPET Mode	[32-bit mode]	

↑ ↓ → ← : Move Enter : Select +/- / PU / PD : Value F10 : Save ESC : Exit F1 : General Help
F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults

Figure 4.12 Power Management Setup

Table 4.12 Power Management setup select

Description	Choice
<p>ACPI Function</p> <p>ACPI Function cannot be changed. Only “Enabled” is supported.</p>	 <p>The screenshot shows a BIOS menu titled "ACPI Function". The current selection is "Enabled", indicated by a solid black square [■] to the right of the word "Enabled". Below the menu items, navigation instructions are shown: "↑ ↓ : Move ENTER : Accept ESC : Abort".</p>
<p>Note: ACPI (Advanced Configuration and Power Interface) is a power management specification that makes hardware status information available to the operating system. ACPI enables a computer to turn its peripherals on and off for improved power management. It also allows the computer to be turned on and off by external devices, so that mouse or keyboard activity wakes up the computer.</p>	
<p>ACPI Suspend Type</p> <p>ACPI Suspend Type can not be changed. Only “S1 (POS)” is supported.</p>	 <p>The screenshot shows a BIOS menu titled "ACPI Suspend Type". The current selection is "S1(POS)", indicated by a solid black square [■] to the right of the text. Below the menu items, navigation instructions are shown: "↑ ↓ : Move ENTER : Accept ESC : Abort".</p>
<p>Power Management</p> <p>Select how to set the Power Management function.</p> <p>User Define: You can set values for each mode individually. The selectable range is between 1 minute and 1 hour when it is enabled.</p> <p>Min Saving: Minimum power management is processed. (Suspend mode = 1 hour)</p> <p>Max Saving: Maximum power management is processed. (Suspend mode = 1 minute)</p>	 <p>The screenshot shows a BIOS menu titled "Power Management". The current selection is "User Define", indicated by a solid black square [■] to the right of the text. Other options shown are "Min Saving" and "Max Saving", both with empty brackets [] to their right. Below the menu items, navigation instructions are shown: "↑ ↓ : Move ENTER : Accept ESC : Abort".</p>

Description	Choice
<p>Video Off Method</p> <p>Select the power management method of video in the standby mode.</p> <p>Blank Screen: Turns the screen off.</p> <p>V/H SYNC+ Blank: Turns V/H SYNC and display signals off.</p> <p>DPMS: Controls it according to DPMS. The connected display should support DPMS.</p>	
<p>Video Off In Suspend</p> <p>Selecting “Yes”, a video becomes off in the standby mode.</p>	
<p>Suspend Type</p> <p>Select Suspend type. The option is “Stop Grant” and “PwrOn Suspend”.</p>	
<p>Suspend Mode</p> <p>If no power management event happen between the specified period, CPU clock stops and a video signal becomes the suspended condition.</p> <p>When any power management events are detected, the system wakes up from the suspended condition.</p>	
<p>Reload Global Timer Events</p> <p>Selecting “Enabled”, the global timer of the standby mode restarts following the respective event carried out by registered devices.</p>	

Description	Choice
<p>Com Port</p> <p>Select Disable / Enabled of COM port.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>COM Port</p> <p>Disabled <input checked="" type="checkbox"/></p> <p>Enabled <input type="checkbox"/></p> <p style="text-align: center;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>
<p>HPET Support</p> <p>Select Disable / Enabled of HPET (High Precision Event Timer) Support.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>HPET Support</p> <p>Disabled <input type="checkbox"/></p> <p>Enabled <input checked="" type="checkbox"/></p> <p style="text-align: center;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>
<p>HPET Mode</p> <p>Select HPET (High Precision Event Timer) Mode. Normally select the proper value according to OS you use.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>HPET Mode</p> <p>32-bit mode <input checked="" type="checkbox"/></p> <p>64-bit mode <input type="checkbox"/></p> <p style="text-align: center;">↑ ↓ :Move ENTER:Accept ESC:Abort</p> </div>

PnP/PCI Configuration Setup

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

Phoenix - AwardBIOS CMOS Setup Utility PnP/PCI Configurations

Reset Configuration Data	[Disabled]	Item Help
Resources Controlled By x IRQ Resources	[Auto (ESCD)] Press Enter	Menu level ▶
INT Pin 1 Assignment	[Auto]	
INT Pin 2 Assignment	[Auto]	
INT Pin 3 Assignment	[Auto]	
INT Pin 4 Assignment	[Auto]	
INT Pin 5 Assignment	[Auto]	
INT Pin 6 Assignment	[Auto]	
INT Pin 7 Assignment	[Auto]	
INT Pin 8 Assignment	[Auto]	

↑ ↓ → ← : Move Enter : Select +/- / PU / PD : Value F10 : Save ESC : Exit F1 : General Help
F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults

Figure 4.13 PnP/PCI Configuration Setup

Table 4.13 PCI PnP/PCI Configuration Setup select

Description	Choice								
Reset Configuration Data Select Disabled / Enabled of Reses Configuration Data. Normally select "Disabled". If a fatal conflict happens and the operating system cannot boot after installing new addon and reconstructing system, select "Enabled" . ESCD (Extended System Configuration Data) will be reset after the setup.	<table border="1"> <tr> <td colspan="2">Reset Configuration Data</td> </tr> <tr> <td>Disabled</td> <td>..... [█]</td> </tr> <tr> <td>Enabled</td> <td>..... []</td> </tr> <tr> <td colspan="2">↑↓:Move ENTER:Accept ESC:Abort</td> </tr> </table>	Reset Configuration Data		Disabled [█]	Enabled []	↑↓:Move ENTER:Accept ESC:Abort	
Reset Configuration Data									
Disabled [█]								
Enabled []								
↑↓:Move ENTER:Accept ESC:Abort									

Description	Choice						
<p>Resource Controlled By</p> <p>Select Resource Controlled By.</p> <p>The Award Plug and Play BIOS can automatically configure all the boot and Plug and Play compatible devices. If you select "Auto(ESCD)", all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them</p>	<table border="1"> <thead> <tr> <th colspan="2" data-bbox="823 226 1347 282">Resources Controlled By</th> </tr> </thead> <tbody> <tr> <td data-bbox="823 282 1086 315">Auto(ESCD)</td> <td data-bbox="1086 282 1347 315">..... [█]</td> </tr> <tr> <td data-bbox="823 315 1086 349">Manual</td> <td data-bbox="1086 315 1347 349">..... []</td> </tr> </tbody> </table> <p data-bbox="823 539 1347 573">↑↓:Move ENTER:Accept ESC:Abort</p>	Resources Controlled By		Auto(ESCD) [█]	Manual []
Resources Controlled By							
Auto(ESCD) [█]						
Manual []						

IRQ n Resources

You can select "IRQ Resources" if you set "Resources Controlled By" to "Manual" in "PnP/PCI Configuration Setup". Selecting "IRQ Resources", the sub-menu will be shown. For details, refer to the following.

If you want to control resources manually, assign each system interruption to one of the following device types.

- PCI Device: The device which is compliant with Plug-and-Play standard and designed to support PCI or ISA bus architecture.
- Reserved: The device which is not compliant with Plug-and-Play standard and require the specific IRQ assignment.

Option: PCI Device, Reserved

Phoenix - AwardBIOS CMOS Setup Utility
IRQ Resources

<pre> IRQ-3 Assigned to [PCI Device] IRQ-4 Assigned to [PCI Device] IRQ-5 Assigned to [PCI Device] IRQ-7 Assigned to [PCI Device] IRQ-9 Assigned to [PCI Device] IRQ-10 Assigned to [PCI Device] IRQ-11 Assigned to [PCI Device] IRQ-12 Assigned to [PCI Device] IRQ-14 Assigned to [PCI Device] IRQ-15 Assigned to [PCI Device] </pre>	<p style="text-align: center;">Item Help</p> <hr/> <p>Menu level ▶</p>
---	---

↑ ↓ → ← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Figure 4.14 IRQ n Resources

Table 4.14 PCI PnP/PCI Configuration Setup select

Description	Choice																										
<p>INT Pin 1 Assignment</p> <p>Select INT Pin 1 Assignment</p> <p>Devices(s) using this INT: Network Controller - Bus 1 Dev 0 Func 0 Display Controller - Bus 0 Dev 2 Func 0 USB 1.0/1.1 UHCI Controller - Bus 0 Dev 26 Func 0</p>	<table border="1"> <thead> <tr> <th colspan="2">INT Pin 1 Assignment</th> </tr> </thead> <tbody> <tr><td>Auto</td><td>..... [█]</td></tr> <tr><td>3</td><td>..... []</td></tr> <tr><td>4</td><td>..... []</td></tr> <tr><td>5</td><td>..... []</td></tr> <tr><td>7</td><td>..... []</td></tr> <tr><td>9</td><td>..... []</td></tr> <tr><td>10</td><td>..... []</td></tr> <tr><td>11</td><td>..... []</td></tr> <tr><td>12</td><td>..... []</td></tr> <tr><td>14</td><td>..... []</td></tr> <tr><td>15</td><td>..... []</td></tr> <tr> <td colspan="2" style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</td> </tr> </tbody> </table>	INT Pin 1 Assignment		Auto [█]	3 []	4 []	5 []	7 []	9 []	10 []	11 []	12 []	14 []	15 []	↑↓:Move ENTER:Accept ESC:Abort	
INT Pin 1 Assignment																											
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12 []																										
14 []																										
15 []																										
↑↓:Move ENTER:Accept ESC:Abort																											
<p>INT Pin 2 Assignment</p> <p>Select INT Pin2 Assignment</p> <p>Devices(s) using this INT: Network Controller - Bus 2 Dev 0 Func 0</p>	<table border="1"> <thead> <tr> <th colspan="2">INT Pin 2 Assignment</th> </tr> </thead> <tbody> <tr><td>Auto</td><td>..... [█]</td></tr> <tr><td>3</td><td>..... []</td></tr> <tr><td>4</td><td>..... []</td></tr> <tr><td>5</td><td>..... []</td></tr> <tr><td>7</td><td>..... []</td></tr> <tr><td>9</td><td>..... []</td></tr> <tr><td>10</td><td>..... []</td></tr> <tr><td>11</td><td>..... []</td></tr> <tr><td>12</td><td>..... []</td></tr> <tr><td>14</td><td>..... []</td></tr> <tr><td>15</td><td>..... []</td></tr> <tr> <td colspan="2" style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</td> </tr> </tbody> </table>	INT Pin 2 Assignment		Auto [█]	3 []	4 []	5 []	7 []	9 []	10 []	11 []	12 []	14 []	15 []	↑↓:Move ENTER:Accept ESC:Abort	
INT Pin 2 Assignment																											
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14 []																										
15 []																										
↑↓:Move ENTER:Accept ESC:Abort																											
<p>INT Pin 3 Assignment</p> <p>Select INT Pin 3 Assignment</p> <p>Devices(s) using this INT: USB 1.0/1.1 UHCI Controller - Bus 0 Dev 29 Func 2 USB 2.0 EHCI Controller - Bus 0 Dev 26 Func 7</p>	<table border="1"> <thead> <tr> <th colspan="2">INT Pin 3 Assignment</th> </tr> </thead> <tbody> <tr><td>Auto</td><td>..... [█]</td></tr> <tr><td>3</td><td>..... []</td></tr> <tr><td>4</td><td>..... []</td></tr> <tr><td>5</td><td>..... []</td></tr> <tr><td>7</td><td>..... []</td></tr> <tr><td>9</td><td>..... []</td></tr> <tr><td>10</td><td>..... []</td></tr> <tr><td>11</td><td>..... []</td></tr> <tr><td>12</td><td>..... []</td></tr> <tr><td>14</td><td>..... []</td></tr> <tr><td>15</td><td>..... []</td></tr> <tr> <td colspan="2" style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</td> </tr> </tbody> </table>	INT Pin 3 Assignment		Auto [█]	3 []	4 []	5 []	7 []	9 []	10 []	11 []	12 []	14 []	15 []	↑↓:Move ENTER:Accept ESC:Abort	
INT Pin 3 Assignment																											
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15 []																										
↑↓:Move ENTER:Accept ESC:Abort																											

Description	Choice																										
<p>INT Pin 4 Assignment</p> <p>Select INT Pin 4 Assignment</p> <p>Devices(s) using this INT: IDE Controller - Bus 0 Dev 31 Func 2 USB 1.0/1.1 UHCI Controller - Bus 0 Dev 29 Func 1 SMBus Controller - Bus 0 Dev 31 Func 3</p>	<table border="1"> <thead> <tr> <th colspan="2">INT Pin 4 Assignment</th> </tr> </thead> <tbody> <tr> <td>Auto</td> <td>..... [█]</td> </tr> <tr> <td>3</td> <td>..... []</td> </tr> <tr> <td>4</td> <td>..... []</td> </tr> <tr> <td>5</td> <td>..... []</td> </tr> <tr> <td>7</td> <td>..... []</td> </tr> <tr> <td>9</td> <td>..... []</td> </tr> <tr> <td>10</td> <td>..... []</td> </tr> <tr> <td>11</td> <td>..... []</td> </tr> <tr> <td>12</td> <td>..... []</td> </tr> <tr> <td>14</td> <td>..... []</td> </tr> <tr> <td>15</td> <td>..... []</td> </tr> <tr> <td colspan="2">↑:Move ENTER:Accept ESC:Abort</td> </tr> </tbody> </table>	INT Pin 4 Assignment		Auto [█]	3 []	4 []	5 []	7 []	9 []	10 []	11 []	12 []	14 []	15 []	↑:Move ENTER:Accept ESC:Abort	
INT Pin 4 Assignment																											
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↑:Move ENTER:Accept ESC:Abort																											
<p>INT Pin 5 Assignment</p> <p>Select INT Pin 5 Assignment</p> <p>Devices(s) using this INT: - Reserved</p>	<table border="1"> <thead> <tr> <th colspan="2">INT Pin 5 Assignment</th> </tr> </thead> <tbody> <tr> <td>Auto</td> <td>..... [█]</td> </tr> <tr> <td>3</td> <td>..... []</td> </tr> <tr> <td>4</td> <td>..... []</td> </tr> <tr> <td>5</td> <td>..... []</td> </tr> <tr> <td>7</td> <td>..... []</td> </tr> <tr> <td>9</td> <td>..... []</td> </tr> <tr> <td>10</td> <td>..... []</td> </tr> <tr> <td>11</td> <td>..... []</td> </tr> <tr> <td>12</td> <td>..... []</td> </tr> <tr> <td>14</td> <td>..... []</td> </tr> <tr> <td>15</td> <td>..... []</td> </tr> <tr> <td colspan="2">↑:Move ENTER:Accept ESC:Abort</td> </tr> </tbody> </table>	INT Pin 5 Assignment		Auto [█]	3 []	4 []	5 []	7 []	9 []	10 []	11 []	12 []	14 []	15 []	↑:Move ENTER:Accept ESC:Abort	
INT Pin 5 Assignment																											
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↑:Move ENTER:Accept ESC:Abort																											
<p>INT Pin 6 Assignment</p> <p>Select INT Pin 6 Assignment</p> <p>Devices(s) using this INT: USB 1.0/1.1 UHCI Controller - Bus 0 Dev 26 Func 1</p>	<table border="1"> <thead> <tr> <th colspan="2">INT Pin 6 Assignment</th> </tr> </thead> <tbody> <tr> <td>Auto</td> <td>..... [█]</td> </tr> <tr> <td>3</td> <td>..... []</td> </tr> <tr> <td>4</td> <td>..... []</td> </tr> <tr> <td>5</td> <td>..... []</td> </tr> <tr> <td>7</td> <td>..... []</td> </tr> <tr> <td>9</td> <td>..... []</td> </tr> <tr> <td>10</td> <td>..... []</td> </tr> <tr> <td>11</td> <td>..... []</td> </tr> <tr> <td>12</td> <td>..... []</td> </tr> <tr> <td>14</td> <td>..... []</td> </tr> <tr> <td>15</td> <td>..... []</td> </tr> <tr> <td colspan="2">↑:Move ENTER:Accept ESC:Abort</td> </tr> </tbody> </table>	INT Pin 6 Assignment		Auto [█]	3 []	4 []	5 []	7 []	9 []	10 []	11 []	12 []	14 []	15 []	↑:Move ENTER:Accept ESC:Abort	
INT Pin 6 Assignment																											
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15 []																										
↑:Move ENTER:Accept ESC:Abort																											
<p>INT Pin 7 Assignment</p> <p>Select INT Pin 7 Assignment.</p> <p>Devices(s) using this INT: - Reserved</p>																											

Description	Choice																										
<p>INT Pin 8 Assignment</p> <p>Select INT Pin 8 Assignment.</p> <p>Devices(s) using this INT: USB 1.0/1.1 UHCI Controller - Bus 0 Dev 29 Func 0 USB 2.0 EHCI Controller - Bus 0 Dev 29 Func 7</p>	<table border="1"> <thead> <tr> <th colspan="2" data-bbox="911 219 1434 280">INT Pin 8 Assignment</th> </tr> </thead> <tbody> <tr> <td data-bbox="911 280 1166 315">Auto</td> <td data-bbox="1166 280 1434 315">..... [<input checked="" type="checkbox"/>]</td> </tr> <tr> <td data-bbox="911 315 1166 351">3</td> <td data-bbox="1166 315 1434 351">..... []</td> </tr> <tr> <td data-bbox="911 351 1166 387">4</td> <td data-bbox="1166 351 1434 387">..... []</td> </tr> <tr> <td data-bbox="911 387 1166 423">5</td> <td data-bbox="1166 387 1434 423">..... []</td> </tr> <tr> <td data-bbox="911 423 1166 459">7</td> <td data-bbox="1166 423 1434 459">..... []</td> </tr> <tr> <td data-bbox="911 459 1166 495">9</td> <td data-bbox="1166 459 1434 495">..... []</td> </tr> <tr> <td data-bbox="911 495 1166 530">10</td> <td data-bbox="1166 495 1434 530">..... []</td> </tr> <tr> <td data-bbox="911 530 1166 566">11</td> <td data-bbox="1166 530 1434 566">..... []</td> </tr> <tr> <td data-bbox="911 566 1166 602">12</td> <td data-bbox="1166 566 1434 602">..... []</td> </tr> <tr> <td data-bbox="911 602 1166 638">14</td> <td data-bbox="1166 602 1434 638">..... []</td> </tr> <tr> <td data-bbox="911 638 1166 674">15</td> <td data-bbox="1166 638 1434 674">..... []</td> </tr> <tr> <td colspan="2" data-bbox="911 674 1434 732">↑↓:Move ENTER:Accept ESC:Abort</td> </tr> </tbody> </table>	INT Pin 8 Assignment		Auto [<input checked="" type="checkbox"/>]	3 []	4 []	5 []	7 []	9 []	10 []	11 []	12 []	14 []	15 []	↑↓:Move ENTER:Accept ESC:Abort	
INT Pin 8 Assignment																											
Auto [<input checked="" type="checkbox"/>]																										
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12 []																										
14 []																										
15 []																										
↑↓:Move ENTER:Accept ESC:Abort																											

PC Health Status

The BIOS shows the PC health status in this window.

Phoenix - AwardBIOS CMOS Setup Utility
PC Health Status

<p>CPU THRM-Throttling [Disabled] CPU Warning Temperature [Disabled] Current System Temp 52°C/ 125° F Current CPU1 Temperature 67°C/ 152° F Vcore 0.84V 1.8V 1.76V 5V 4.91V 3.3V 3.34V 1.05V 1.06V VBAT (V) 3.10V</p>	<p style="text-align: center;">Item Help</p> <hr/> <p>Menu level ▶</p>
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↑ ↓ → ← : Move Enter : Select +/- / PU / PD : Value F10 : Save ESC : Exit F1 : General Help
 F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults

Figure 4.15 PC Health Status

Table 4.15 PC Health Status

Description	Choice
<p>CPU THRM-Throttling</p> <p>When the temperature exceeds the value set in “CPU Warning Temperature” below, the throttling is activated in selected percentages to restrain the heat generation from CPU. Note that the operation in Windows is not supported.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">CPU THRM-Throttling</p> <p>Disabled [■] 75.0% [] 50.0% [] 25.0% []</p> <p style="text-align: center;">↑ ↓ : Move ENTER : Accept ESC : Abort</p> </div>
<p>CPU Warning Temperature</p> <p>Select CPU Warning Temperature. You can select the threshold temperature of CPU temperature warning. If it exceeds the specified temperature, a beep will sound as a warning.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">CPU Warning Temperature</p> <p>Disabled [■] 50°C/122° F [] 53°C/127° F [] 56°C/133° F [] 60°C/140° F [] 63°C/145° F [] 66°C/151° F [] 70°C/158° F []</p> <p style="text-align: center;">↑ ↓ : Move ENTER : Accept ESC : Abort</p> </div>

Frequency/Voltage Control

Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control

<p>Spread Spectrum [Enabled]</p>	<p>Item Help</p> <hr/> <p>Menu Level ►</p>
---	--

↑↓←→:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
 F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Figure 4.16 Frequency/Voltage Control

Table 4.16 Frequency/Voltage Control Selections

Description	Choice								
<p>Spread Spectrum</p> <p>Select Disabled / Enabled of Spread Spectrum. When the system clock generator pulses, the extreme values of the pulse generate excess EMI. Selecting "Enabled" changes the extreme values from spikes to flat curves, thus reducing EMI. This benefit may in some cases be outweighed by problems with timing-critical devices.</p>	<table border="1" style="width: 100%;"> <tr> <td colspan="2" style="text-align: center;">Spread Spectrum</td> </tr> <tr> <td style="width: 60%;">Disabled</td> <td style="text-align: right;">..... []</td> </tr> <tr> <td>Enabled</td> <td style="text-align: right;">..... [■]</td> </tr> <tr> <td colspan="2" style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</td> </tr> </table>	Spread Spectrum		Disabled []	Enabled [■]	↑↓:Move ENTER:Accept ESC:Abort	
Spread Spectrum									
Disabled []								
Enabled [■]								
↑↓:Move ENTER:Accept ESC:Abort									

Defaults Menu

Selecting “Defaults” from the main menu shows you two options which are described below

Load Fail-Safe Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N) ? N

Pressing “Y” loads the BIOS default values for the most stable, minimal-performance system operations.

Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N) ? N

Pressing “Y” loads the default values that are factory settings for optimal performance system operations.

Supervisor/User Password Setting

You can set either supervisor or user password, or both of them. The differences between them are:

SUPERVISOR PASSWORD: can enter and change the options of the setup menus.

USER PASSWORD: just can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm that the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED:

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to “System”, the password will be required both at boot and at entry to Setup. If set to “Setup”, prompting only occurs when trying to enter Setup.

Exit Selecting

Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? **Y**

Pressing “Y” stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? **Y**

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

POST Messages

During the Power On Self-Test (POST), if the BIOS detects an error requiring you to fix something, it will either sound a beep code or display a message.

If a message is displayed, it will be accompanied by:

PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP

POST Beep

Currently there are two kinds of beep codes in BIOS. This code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by two short beeps. The other code indicates that your DRAM error has occurred. This beep code consists of a single long beep repeatedly.

Position and Setting of CMOS, ROM clear switch

If an unexpected activation failure occurs due to the BIOS setting, the CMOS/ROM clear jumper can be set in order to disable the BIOS setting and start up the system.

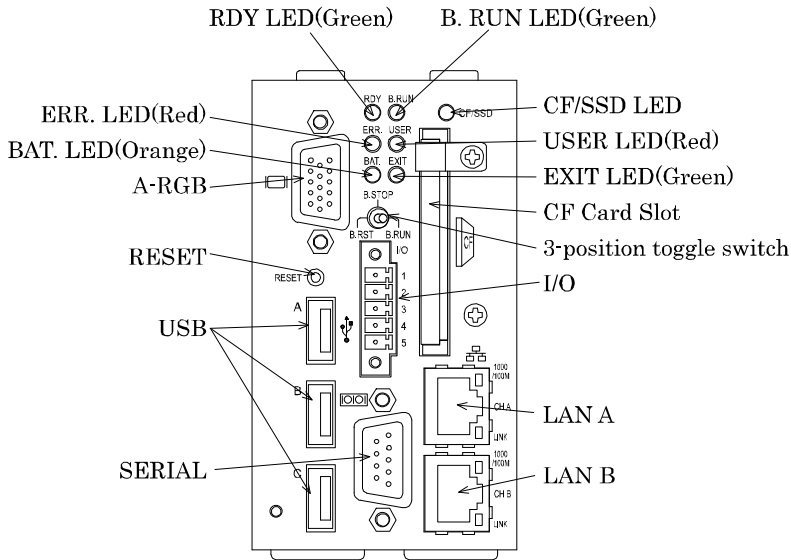
In the normal operation, leave the CMOS/ROM clear jumper to the factory setting (both: OFF).

- (1) First turn power off of the main body. Then set CMOS clear switch (DIP switch 1 – SW1) to ON. After 10 seconds, set it to OFF again.
- (2) Set ROM clear switch (DIP switch 1 – SW2) to ON.
- (3) Turn power on of the main body and start the system. After the system wakes up, start the BIOS setup and set proper values to it.
- (4) After the settings, set ROM clear switch (DIP switch1 – SW2) to OFF again and save the settings. Then reboot the system.

5. Each Component Function

Component Name

Front



Bottom

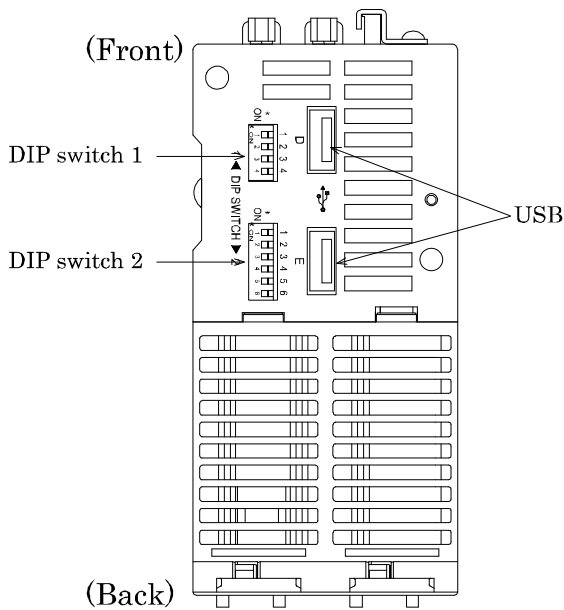


Figure 5.1 Component Name

Table 5.1 Each Component Function

Name	Function
CF-CARD	CF card slot (only for a CF card with IDE connection)
LAN A	Ethernet 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector
LAN B	Ethernet 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector
RDY LED	Indicates hardware ready
B.RUN LED	Indicates the running of bus interface driver
ERR. LED	Indicates system error
USER LED	Indicates user error
BAT. LED	Indicates battery alarm
EXIT LED	Indicates shutdown (power off) or hardware reset
I/O	I/O terminal for shutdown, WDT output terminal
SERIAL	Serial port connector (9-pin D-SUB, male)
A-RGB	CRT connector (15-pin HD-SUB, female)
USB	USB port connector × 5
RESET	Push switch for hardware reset
3-position toggle switch	Control switch for bus interface driver
DIP switch 1	Switch for CMOS clear, ROM clear, SSD Enable and SSD write protect
DIP switch 2	Switch to select the reset method
CF/SSD LED	Indicates the access of SSD or a CF card

Each Component Function

CF card connector: CF-CARD

A CF card connector supports a CF card (Type I: memory card only).

Table 5.2 CF card connector

Connector used		50-pin header type (1.27mm pitch)			
Pin No.	Signal name	Direction	Pin No.	Signal name	Direction
1	GND		26	N.C.	
2	DD3	I/O	27	DD11	I/O
3	DD4	I/O	28	DD12	I/O
4	DD5	I/O	29	DD13	I/O
5	DD6	I/O	30	DD14	I/O
6	DD7	I/O	31	DD15	I/O
7	CS0-	Output	32	CD3-	Output
8	GND		33	N.C.	
9	GND		34	DIOR-	Output
10	GND		35	DIOW-	Output
11	GND		36	+5V	
12	GND		37	INTRQ	Input
13	+5V		38	+5V	
14	GND		39	CSEL-	Output
15	GND		40	N.C.	
16	GND		41	RESET-	Output
17	GND		42	IOCHRDY	Input
18	DA2	Output	43	DDRQ	Input
19	DA1	Output	44	DDACK-	Output
20	DA0	Output	45	DACT-	Output
21	DD0	I/O	46	DALE	Output
22	DD1	I/O	47	DD8	I/O
23	DD2	I/O	48	DD9	I/O
24	N.C.		49	DD10	I/O
25	N.C.		50	GND	

⚠ CAUTION

- The CF card connector does not support hot plugging. The card should not be inserted or removed with the power supply ON. You should not insert or remove the card or come into contact with it while the power is on doing so may cause this product to malfunction or fail.
Before you insert/remove the CF card, make sure that the power is switched off and the access LED is turned off.
 - We have evaluated the operation of a CF card using the specific CF card listed on “Chapter 9 List of Options and Recommended Parts”. The operation of other CF cards (such as commercial ones) cannot be guaranteed.
-

Built-in SSD

The product contains a SSD which has a capacity of 4GB. The built-in SSD is used for OS. SSD has the rewritable life (1 million times). Therefore a CF card is recommended for the data which will be rewritten frequently to be stored.

Write protect function

This product has two types of write protect function.

- EWF function of Windows® Embedded Standard 2009: the function by software
- Write protect of DIP switch: the function by hardware

The write protect by EWF is sufficiently effective. The combination of it and the DIP switch provides further reliable protect for writing. However, the DIP switch must be used in conjunction with EWF. If you set the DIP switch for write protect to ON without setting EWF to Enabled, OS will not boot.

Refer to following procedures for the setting.

[How to set the DIP switch for write protect from OFF to ON]

- (1) First start up Windows, then make sure the condition of EWF from command prompt. If it is Disabled, set it to Enabled. ^{*1}
- (2) Shutdown Windows. Then turn power off.
- (3) Set the 4th switch of DIP switch 1 to ON.

[How to set the DIP switch for write protect from ON to OFF]

- (1) Turn power off.
- (2) Set the 4th switch of DIP switch 1 to OFF.
- (3) If you want to turn EWF off, start up Windows, set EWF to Disabled from command prompt, then reboot OS. ^{*1}

*1: In order to know how to set EWF, refer to “Notes on Windows®Embedded Standard”, which is packed with this product.

SSD Enable switch

The 3rd switch of DIP switch 1 can change the condition of built-in SSD to Enabled / Disabled. Set this switch to ON if your application or system requires it or you want to make SSD unrecognizable to the OS and BIOS.

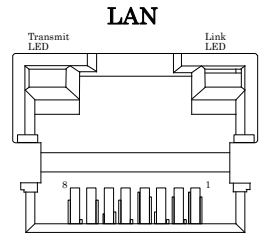
Giga bit-Ethernet: LAN A - B

This product is equipped with 2 ports for giga bit.

- Network type : 1000BASE-T/100BASE-TX/10BASE-T
- Transmission speed : 1000M/100M/10M bps
- Max. network path length : 100m/segment
- Controller : Intel 82574L

Table 5.3 1st Ethernet Connector

PIN#	Function	
	100BASE-TX	1000BASE-T
1	TX+	TRD+(0)
2	TX-	TRD-(0)
3	RX+	TRD+(1)
4	N.C.	TRD+(2)
5	N.C.	TRD-(2)
6	RX-	TRD-(1)
7	N.C.	TRD+(3)
8	N.C.	TRD-(3)



The diagram shows a top-down view of the LAN connector. It features two LEDs: a 'Transmit LED' on the left and a 'Link LED' on the right. Below the LEDs is an 8-pin RJ45 connector with pins numbered 1 through 8 from right to left.

LEDs for display of network statuses:

- Right LED : Link LED
- Normal connection : Green ON
 - Operation : Green Blinking
- Left LED : Operation LED
- 10M : Off
 - 100M : Green
 - 1000M : Orange

LAN drivers

Installed

LED Displays

Table 5.4 LED Displays

Abbreviation	Name	Color	Status	Definition
RDY	H/W READY	Green	On	The hardware is all set to go.
			Off	The hardware is not ready or a system WDT error has occurred.
			Blink	A reset by the reset switch has been accepted. The hardware is reset two seconds after the LED starts blinking.
B.RUN	BUS I/F DRIVER RUN	Green	On	The bus interface driver is running. (User applications have been enabled for bus access.)
			Off	The bus interface driver has been suspended. (The Y output is off. User applications have been disabled for bus access.)
			Blink	The bus interface driver has accepted a reset generated either by setting the toggle switch to B.RST or by resetting module No. 1 in the multiple CPU configuration. *1
ERR.	SYSTEM ERROR	Red	On	A system error has occurred without stopping the output.
			Off	This product is in the normal state.
			Blink	A system error has occurred while stopping the output.
USER	USER ERROR	Red	On	A user error has occurred.
			Off	This product is in the normal state.
BAT.	BATTERY ALARM	Orange	On	This product has caused an internal battery error.
			Off	This product is in the normal state.
EXIT	EXIT	Green	On	The shutdown and hardware reset procedure has been completed. *2
			Off	The shutdown and hardware reset procedure has not been completed.
CF/SSD	CF/SSD ACCESS	Green	On	Access is being made to IDE (built-in SSD/a CF card)
			Off	Access is not being made to IDE (built-in SSD/a CF card).

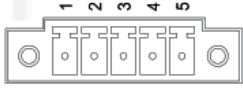
*1 When the B.RUN LED is blinking, do not reset again the bus interface driver by setting the toggle switch to B.RST or resetting module No. 1 in the multiple CPU configuration.

*2 When the shutdown of OS is completed, nothing is displayed on a CRT screen but it becomes a black screen.

Terminal block: I/O

Connect it using the terminal block connector packed with this product

Table 5.5 Terminal Block

		
Pin	Signal	Connection method
1	Shutdown input (+)	Refer to figure 5.2 input circuit
2	Shutdown input (-)	
3	Shutdown complete output	Refer to figure 5.3 output circuit
4	Watch dog timer start output	
5	Common terminal for Pin 3,4	

⚠ CAUTION

- Shutdown input /output is supported by Windows® Embedded Standard 2009 only.
- If ON-period of shutdown input is longer than 5 seconds, the forced shutdown will run. It is not a normal shutdown. After this procedure, OS may not boot up in order.
 - (*) In general, do not use the forced shutdown.
 - (*) When you want to shutdown the OS (Windows® Embedded Standard 2009) using the shutdown input, the ON-period should be within the range 0.7sec – 3sec.
- If you want to reboot the module after the normal shutdown or the forced shutdown (the condition that the shutdown complete output of this module is ON and EXIT LED of MELSECWinCPU module lights), you should turn power off -> on or send a signal to the shutdown input (ON-period : 0.7sec – 3sec) again.
 - (*) If the reset button of a MELSECWinCPU module is pushed, you can not reboot the module.
- If the shutdown input is ON, a MELSECWinCPU module can not start up.
- When you are booting up Windows, do not shut it down. The shutdown procedure may not be done in the correct order.

Specification

[Common]

Item	Specification
Available wire range	Single wire: 24 to 16AWG
	Twisted wire: 24 to 16AWG
The standard length of peeled wire	10mm
Recommended tool to control buttons	A minus driver (diameter: 3mm, edge width: 2.6mm)
Terminal block tightening torque	0.2 - 0.3Nm
Wire type	Use 60/75°C Copper Conductor Only

(*) Use a rod terminal as needed

[Input part]

Item	Specification
Input specification	Current drive input insulated by photocoupler
Input resistance	3.3k Ω
Input protect circuit	With diode to protect circuit from reversed input
Input response time	less than 100 μ sec
External circuit power	DC12 - 24V (\pm 10%)
Normal shutdown	Input ON time: 0.7sec - 3sec
Forced shutdown	Input ON time: more than 5sec

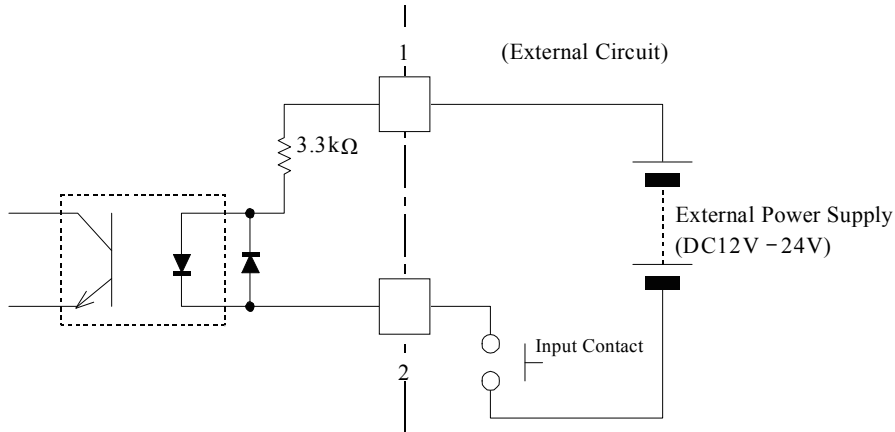


Figure 5.2 Input Circuit

[Output part]

Item	Specification
Output specification	Open collector output insulated by photocoupler
Output condition	(1) Shutdown complete output becomes ON when the shutdown has finished (2) Watch dog timer start output becomes OFF when timeup has come
Rest voltage of output ON	Less than 1.3V (output current \leq 50mA), Less than 1.5V (output current \leq 100mA)
Rating output	Max. DC30V 100mA
Output response time	Less than 300 μ sec

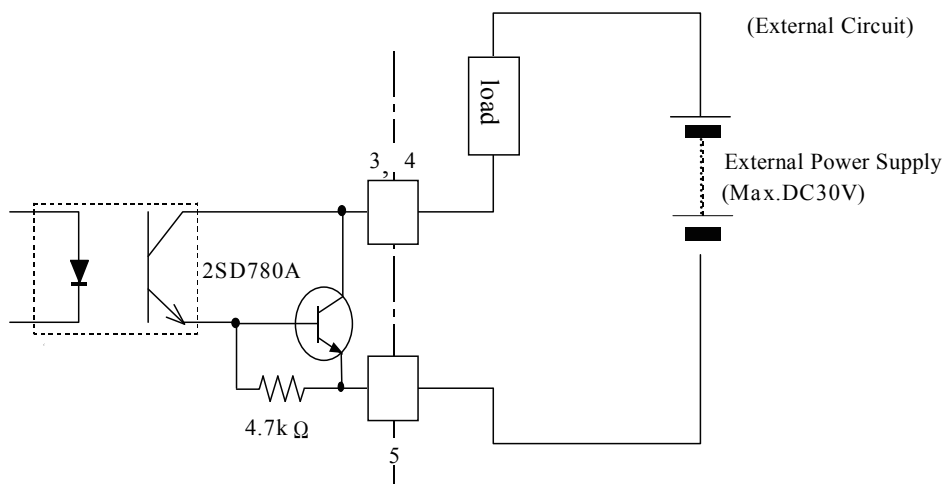


Figure 5.3 Output Circuit

Serial Port Interface: SERIAL

This product has one RS-232C-compliant serial port connector. You can set it to COM1 – 4 or unused on BIOS setup (refer to “Chapter 4 BIOS Setup”).

Table 5.6 SERIAL 1 I/O address, Interruption

COM	I/O address	Interruption
1	03F8 _H -03FF _H	IRQ 3 IRQ 4
2	02F8 _H -02FF _H	IRQ 5 IRQ 7
3	03E8 _H -03EF _H	IRQ 9 IRQ 10
4	02E8 _H -02EF _H	IRQ 11 IRQ 15

The default setting of BIOS is as follows.

Serial port: COM1(03F8_H-03FF_H),IRQ4

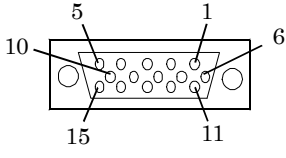
Table 5.7 Serial Connector

Pin No.	Signal name	Meaning	Direction
1	DCD	Data carrier detect	Input
2	RXD	Receive data from equipment	Input
3	TXD	Transmit data to equipment	Output
4	DTR	Data terminal ready	Output
5	GND	Signal ground	None
6	DSR	Data set ready	Input
7	RTS	Request to send	Output
8	CTS	Clear to send	Input
9	RI	Ring indicator	Input

CRT Interface: A-RGB

It has a connector [A-RGB] for CRT connection.

Table 5.8 RGB connector

Connector used	15-pin HD-SUB female connector		
			
Pin No.	Signal name	Pin No.	Signal name
1	RED	9	N.C.
2	GREEN	10	GND
3	BLUE	11	N.C.
4	N.C.	12	DDC Data
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	DDC CLK
8	GND	None	

In order to know which LCD can connect to it, refer to “Chapter 9 List of Options and Recommended Parts”.

Display driver

Installed

⚠ CAUTION

- Connected displays should be compliant with the VESA standard.
- The display may show nothing according to the type of connected monitor after the install of VGA driver. In the case, press <Ctrl>, <Alt> and <F1> keys at the same time.
- When the analog display is used, Windows MS-DOS may not be properly be displayed in full-screen mode.

This is because the frequency and resolution of Windows and MS-DOS (full-screen display) are the same due to the screen settings while the display parameters are different.


For display, as only one parameter can be stored for one frequency or resolution, only either of Windows or MS-DOS screen can be displayed properly.

In this case, change the resolution or display frequency of Windows so that it is not the same as for the MS-DOS display.

USB Port

It has 5ch of USB 2.0 interface [USB].

Figure 5.9 USB connector

	
Pin No.	Signal name
1	Vcc (+5V)
2	DATA-
3	DATA+
4	GND

Maximum power supply

The power capacity which each channel of USB connectors can supply is as follows. But the actual power capacity to supply is limited by the requirement that the current consumption of the total system can not exceed the capacity of the power supply module. Therefore actual available capacity cannot necessarily be equal to the maximum power capacity to supply.

The maximum power capacity to supply: 5V 0.5A (Max.) / channel



CAUTION

- When selecting USB devices, take inrush current into consideration.

Control Switch

Reset switch

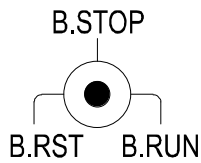
Name	Switch Type	Definition
Reset switch	Push switch	<u>Hardware reset switch</u> Pushing over 1 second make the product reset.



CAUTION

Use a control switch only when the product is showing no response because of abnormal behavior etc. If you use it on normal operations (when OS is working), the system may crash without a shutdown procedure. Then the OS may not work properly after restart.

3-positions toggle switch

**Figure 5.5 Factory Default of 3-position toggle switch**

Name	Switch type	Definition
Toggle switch	3-position toggle switch	<p><u>Bus interface driver control switch</u> *1</p> <p>B.RST (Bus interface driver RESET): Holding the toggle switch at the B.RST position for two seconds resets the MELSEC-Q Series modules under control of this product and the bus interface as well. Use this switch to reset only the MELSEC-Q Series modules instead of causing a hardware reset of the entire system including this product.</p> <p>B.STOP (Bus interface driver STOP): Stops the operation of the bus interface driver, prevents user applications from issuing access to the modules on the bus, and turns the Y output (*2) off. Module diagnostic utilities (such as forced Y output and buffer memory batch-monitor) can be executed.</p> <p>B.RUN (Bus interface driver RUN): Makes the bus interface driver active, allowing user applications to access modules on the bus.</p>

*1 The bus interface driver allows this product to access various MELSEC-Q Series modules such as the programmable controller CPU, I/O, and intelligent function modules.

*2 The MELSEC-Q Series sequence program places "Y" at the beginning of the output number of each output module. The Y output signifies the output to an output module.

Examples of using the toggle switch for the single-CPU configuration with this product alone

Operation expected	Action to take
Stop user application access to the modules on the bus	1) Set the toggle switch to B.STOP
Restart user application access to the modules on the bus	1) Set the toggle switch to B.RUN
Resets the modules on the bus and recover from the reset	1) Set the toggle switch to B.RUN. 2) Hold the toggle switch at the B.RST position for two seconds, then release the switch. 3) Set the toggle switch to B.RUN. 4) Execute the user application.

DIP switch 1

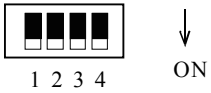


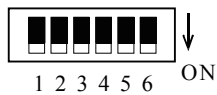
Figure 5.6 Factory Default of DIP switch 1

No.	Name	Switch type	Definition
1	SW-1 *1*2	4-poles sliding dip switch	CMOS clear switch (factory setting : OFF) Refer to “Chapter 4 Position and Setting of CMOS, ROM clear switch”
2	SW-2		ROM clear switch (factory setting : OFF) Refer to “Chapter 4 Position and Setting of CMOS, ROM clear switch”
3	SW-3 *1		SSD Enable switch (factory setting : OFF) ON: It sets built-in SSD to Disabled OFF: It sets built-in SSD to Enabled Refer to “Chapter 5 Built-in SSD”.
4	SW-4 *1		SSD write protect switch (factory setting: OFF) This switch controls the write protect function of built-in SSD. ON: It forbids built-in SSD to be written in. OFF: It permits built-in SSD to be written in. Refer to “Chapter 5 Built-in SSD”.

*1: When changing SW-1, 3, 4 of DIP switches, check that power of the product is OFF. While power is ON, don't change DIP switches.

*2: You change set SW-1 to ON only when power of the product is OFF. If power of the product is ON and SW-1 is ON, it does not work in order. Before turning ON power of the product, be sure to check that SW-1 is OFF.

DIP Switch 2

**Figure 5.6. Factory Default of DIP switch 2**

No	Name	Switch type	Definition
1	SW-1	6-bit slide DIP switch	Reserved (Factory default: OFF)
2	SW-2		Reserved (Factory default: OFF)
3	SW-3		<u>Restart error detection disabled switch</u> (Factory default: OFF) When this product is module No. 2 - 4 in the multiple CPU system OFF: When you shut down this product or restart Windows, a multiple CPU down error is detected on the other modules of the multiple CPU system. ON: When you shut down this product or restart Windows, a multiple CPU down error is not detected on the other modules of the multiple CPU system. You can restart Windows without first stopping the other modules of the multiple CPU system. For details, refer to the following section. Chapter 7, "List for Detecting a Multiple CPU Down Error".
4	SW-4		Reserved (Factory default: OFF)
5	SW-5		<u>Reset method select switch</u> (Factory default: OFF) When this product is module No.2 - 4 in the multiple CPU system *1 OFF: Setting the RESET/L.CLR switch on module No.1 (programmable controller CPU) to RESET resets the bus interface driver without resetting this product. *2 ON: Setting the RESET/L.CLR switch on module No.1 (programmable controller CPU) to RESET resets this product.*3
6	SW-6		Reserved (Factory default: OFF)

- *1 Before making changes to DIP switch settings, turn off the power to this product. Do not touch any DIP switch setting with the Module powered.
- *2 Usually, leave SW-5 set to OFF. If you set SW-5 to ON, the reset operation on Module No.1 resets this product as well. If the OS is still up and running at that time, the reset causes the OS to abort without executing the legitimate shutdown procedure. Note that this may prevent the OS from running normally when restarted.
- *3 Only when Windows® Embedded Standard 2009, turning on SW-5 becomes effective.

Point

For more details on shut down and reset, see chapter7, "Reset Specifications".

6. Combination with the MELSEC-Q Series

Overview

This product can communicate with the MELSEC-Q Series programmable controller CPU module, intelligent function module and I/O module at high speed by connecting the buses using the MELSEC-Q Series bus module.

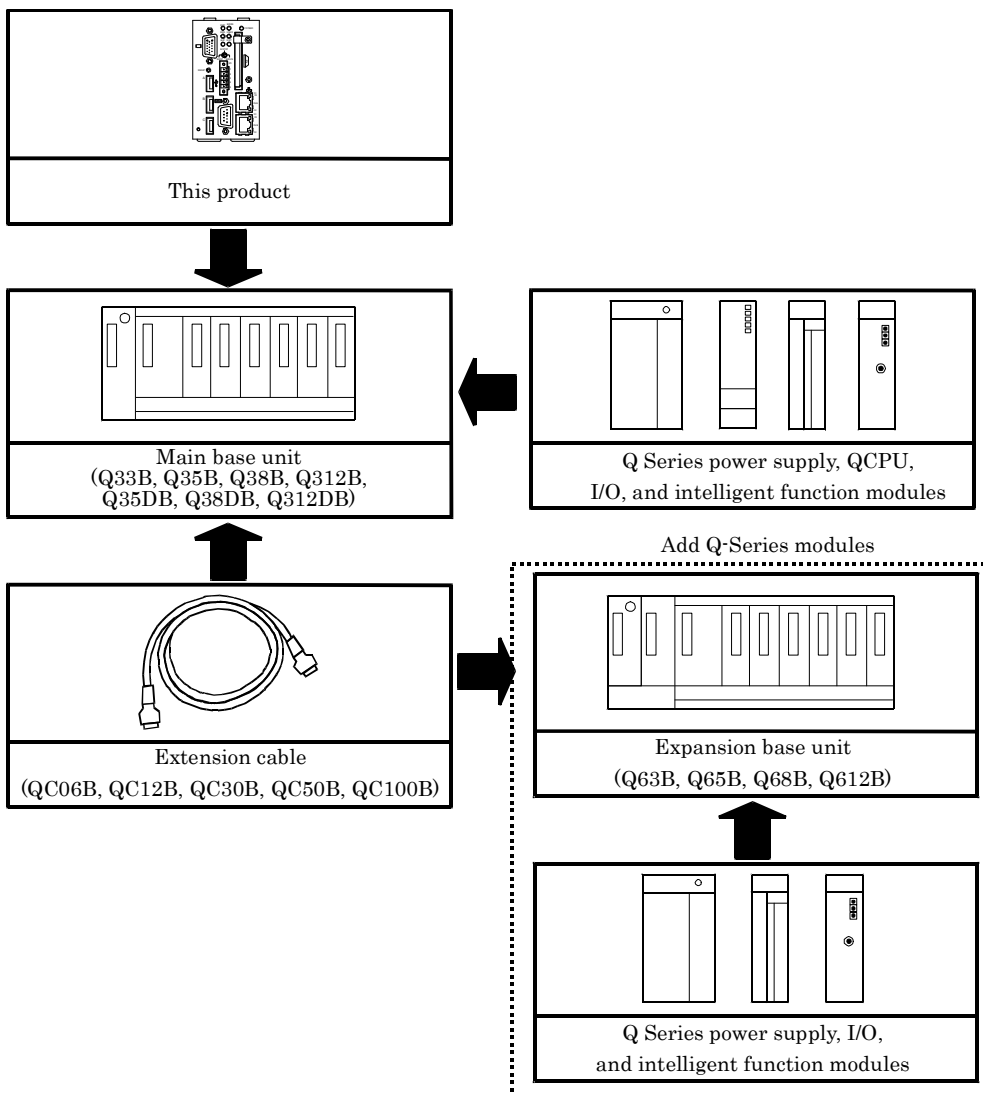
Please refer to the manual of QCPU used for details regarding restrictions.

Note that the bus interface driver is used for communication with the various modules in the MELSEC-Q Series, including the programmable controller CPU.

For details on each MELSEC-Q Series module and the bus interface driver, refer to the relevant manuals.

System Configuration

This product can be combined with MELSEC-Q Series modules as shown below.



Supported Modules *1

Classification	Model name
Base unit	Q33B, Q35B, Q38B, Q312B, Q38DB, Q312DB, Q35DB, Q63B, Q65B, Q68B, Q612B
Power supply module *6 *7	Q61P, Q63P, Q64PN, Q61P-D
AC input module	Q-series modules are available. For details, refer to the manual of each module.
DC input module	
DC/AC input module	
High-speed input module	
Contact output module	Q-series modules are available. For details, refer to the manual of each module.
TRIAC output module	
Transistor output module	
DC input transistor output mixing module	
A-D conversion module	Q64AD *2, Q68ADV *2, Q68ADI *2
D-A conversion module	Q62DAN, Q64DAN, Q68DAVN, Q68DAIN
Analog I/O module	Q64AD2DA
Loadcell input module	Q61LD
High-speed counter module	QD62, QD62D, QD62E, QD63P6, QD64D2
Positioning module *5	QD75P1 *2, QD75P2 *2, QD75P4 *2, QD75D1 *2, QD75D2 *2, QD75D4 *2, QD75P1N, QD75P2N, QD75P4N, QD75D1N, QD75D2N, QD75D4N, QD70P4 *2, QD70P8 *2, QD75M1, QD75M2, QD75M4, QD75MH1, QD75MH2, QD75MH4, QD74MH8, QD74MH16, QD72P3C3, QD70D4, QD70D8
Temperature control module *2	Q64TCTT, Q64TCRT, Q64TCTTBW, Q64TCRTBW, Q64TCTTN, Q64TCRTN, Q64TCTTBWN, Q64TCRTBWN
Temperature-digital conversion module	Q64TD *2, Q64TDV-GH, Q64RD-G, Q68RD3-G, Q68TD-G-H01, Q68TD-G-H02
Temperature input module	Q64RD *2
Pulse input module with insulated channels	QD60P8-G
A-D conversion module with insulated channels	Q68AD-G, Q64AD-GH, Q62AD-DGH
D-A conversion module with insulated channels	Q66DA-G, Q62DA-FG
Distributor with insulated channels	Q66AD-DG
Loop control module	Q62HLC
Interrupt module	QI60, QX40H*3, QX70H*3, QX80H*3, QX90H*3
CC-Link IE Field Network module *5 *8	QJ71GF11-T2
MELSECNET/H module *4 *5	QJ71LP21-25, QJ71LP21S-25, QJ71LP21G, QJ71BR11 *2, QJ71LP21GE
CC-Link module *5	QJ61BT11N
CC-Link/LT module	QJ61CL12 *2
FL-net(OPCN-2) module *5	QJ71FL71-T, QJ71FL71-B5, QJ71FL71-B2 *2, QJ71FL71-T-F01, QJ71FL71-B5-F01, QJ71FL71-B2-F01 *2
AS-i master module *2	QJ71AS92
Serial communication module *5	QJ71C24N, QJ71C24N-R2, QJ71C24N-R4
DeviceNet module	QJ71DN91

*1: MELSEC-Q Series units are manufactured by Mitsubishi Electric Corporation.

*2: Use the product with later function than version B.

*3: It is the case where you turn off the function switch (SW2) and change it to an interrupt unit.

*4: Following MELSECNET/H unit is not available.

Classification	Model name
MELSECNET/H remote I/O station	QJ72LP25-25, QJ72LP25G, QJ72BR15, QJ72LP25GE
MELSECNET/H (twist bus type)	QJ71NT11B

*5: Some functions have limitation. Refer to "Note on using I/O unit and intelligent function unit".

*6: Take care so that total current consumption of the whole system would not exceed DC5V rated output current of a power supply unit.

*7: Q10WCPU-W1 series are to be powered by limited Voltage/Current (LVLC) circuit of Listed Power Supplies.

*8: Use a CC-Link IE Field Network module (QJ71GF11-T2) that has a serial number whose upper 5 digits are "14042" or later.

⚠ CAUTION

If you operate the system whose total current consumption exceeds DC5V rated output current, there is a case where system reset occurs and a file will be damaged during operation of MELSECWinCPU.

Note on using I/O module and intelligent function module

(1) Note on using MELSECNET/H module

MELSECNET/H module under the control of MELSECWinCPU module has following limitation.

- (a) It does not support Remote I/O network.
Only PLC to PLC network is available.
- (b) It can not be used as a relay station of forwarding function between data links or routing forwarding.
If you use forwarding function between data links or routing forwarding, select MELSECNET/H module under the control of programmable controller CPU as a relay station.
- (c) MELSECNET/H special commands are not available.
- (d) SEND/RECV function is not available.
- (e) Interrupt sequence program startup is not available.
- (f) Network diagnosis (test) function is not available.
- (g) Network easy doubling function is not available.
(You can not set network classification to “MNET/H standby station”.)
- (h) When it accesses other stations on doubling CPUs, it can not specify the chain.
Only its own chain can be accessed (where a station number is specified).
- (i) “Debug mode” is not available.

(2) Note on using CC-Link module

CC-Link module under the control of MELSECWinCPU module has following limitation.

- (a) The parameter for CC-link which is set on SWnD5C-J61P (n is later than 0) is not available.
In order to set the parameter, use a CC-Link utility provided by SW1PNC-WCPU-B.
- (b) CC-Link special commands are not available.
- (c) Interrupt sequence program startup is not available.
- (d) CC-Link automatic startup is not available.
- (e) It does not support remote I/O network mode.
- (f) It can not be set as a master station (doubling function).
- (g) Standby master function is not available.

(3) Note on using positioning module

You cannot use the parameter set on GX Configurator-QP on a positioning module under the control of MELSECWinCPU module.

You should use bus interface function (QBF_ToBuF) and write each parameter in the buffer memory of a positioning module.

(4) Note on using serial communication module

Only the communication by the protocols with no procedure is supported on a serial communication module under the control of MELSECWinCPU module.

(a) Following function is not available.

- MC protocol and bi-directional protocol are not available.
- Serial communication module special commands are not available.
- Watch function for programmable controller CPU is not available.
- Modem function is not available.

(b) When using interrupt program, follow the procedure below.

- Select interrupt event No. on <<System Setting>> tab of MELSECWinCPU setting utility.
- Write "1" in the buffer memory (address : 2010_H/2110_H) of a serial communication module.
- In your program, make the procedures where it receives the interrupt event using QBF_WaitUnitEvent function and runs the proper process.

(5) Note on using FL-net module

FL-net module under the control of MELSECWinCPU module has following limitation.

- In your program, make the procedures where it receives the interrupt event using QBF_WaitUnitEvent function and runs the proper process.
- Automatic refresh function is not available.

(6) Note on using GX Configurator

By using MELSECWinCPU setting utility, you can read the default setting of the parameters of an intelligent function module from the project file of GX Developer.

If using GX Works2, first save the project as GX Developer format and read it.

For the note on available project files of GX Developer, refer to followings.

- MELSECWinCPU Module Q-Bus Interface Driver User's Manual (Utility Operation, Programming)

(7) Notes on using the CC-Link IE Field Network Master/Local module

Note the following limitations when using a CC-Link IE Field Network Master/Local module under the control of the MELSECWinCPU module.

(a) There are functions that cannot be used.

For details on the functions that cannot be used, refer to "Chapter 10, Appendix 6".

(b) There are no setup and monitor tools for the CC-Link IE Field Network Master/Local module.

- Write parameters to the buffer memory of the CC-Link IE Field Network Master/Local module.

For details on the parameter settings, refer to "Chapter 10, Appendix 6".

- Perform troubleshooting as shown below.

- When connected to a CC-Link IE Field Network Master/Local module that is under the control of the programmable controller CPU, perform troubleshooting by using the GX Works2 CC-Link IE Field Network diagnosis.

For details, refer to the "MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual".

- Check the error codes, link special relays (SB), and link special registers (SW) of the buffer memory of the CC-Link IE Field Network Master/Local module.

For details, refer to "Checking link special relays and registers" of "Chapter 10, Appendix 6".

(c) Data telecommunication

Use the buffer memory of the CC-Link IE Field Network module to perform data telecommunication.

Notes on I/O No. assignment

MELSECWinCPU module occupies 2 slots. Therefore the right 1 slot of occupied 2 slots would be treated as a blank slot. Don't set I/O assignment to the right 1 slot. (Default settings occupy "Blank", "16 points" and I/O No. of the right slot neighboring a MELSECWinCPU module becomes "0010H"). You can use I/O No. from "0000H" for the right slot neighboring a MELSECWinCPU module by setting "0 points" to the right 1 slot of 2 slots occupied by MELSECWinCPU module.

(1) Slot conditions after I/O assignment

Slots after I/O assignment settings would work according to the specification of the mounted module.

(a) If you set less points than ones of mounted I/O module.

The actual available points of mounted I/O module would get less.

For example, if you set "16 points" for the input module with "32 points", you can not use descending 16 points.

(b) If you set less points than ones of mounted intelligent function module.

Intelligent function module assignment error (error code: 2100, SP.UNITLAY ERR.) would happen.

(c) If you set more points than ones of mounted I/O module.

You can not use the points exceeding the specified points of a mounted I/O module.

(d) If you set different type from a mounted module.

You should set the same type to I/O assignment setting as the actual mounted module. If not, it would work out of order.

If you use an intelligent function module, you should set the same I/O point No. adding to above.

For results when the different type from the actual mounted module was set to an I/O assignment setting, refer to followings.

The list of results when I/O assignment was different from the mounted module

A mounted module	The type set to I/O assignment setting	Result
Input module High-speed input module Output module I/O mixing module	Intelligent / Interruption	Intelligent function module assignment error happens. (Error code: 2100, S P.UNITLAY ERR.)
Input module High-speed input module I/O mixing module	Output	Works as input / high-speed / I/O mixing module. (according to the actual type of the mounted module)
Output module I/O mixing module	Input / High-speed input	Works as output / I/O mixing module. (according to the actual type of the mounted module)
Intelligent function module Interruption module	Input / High-speed input Output / I/O mixing	Intelligent function module assignment error happens. (Error code: 2100, S P.UNIT LAY ERR.)
Blank slot	Input / High-speed input Output / I/O mixing Intelligent / Interruption	Treated as a blank slot. (All points becomes OFF.)
All modules	Blank	Treated as a blank slot. (All points becomes OFF.)
Other combination		No errors happen but not work in order.

(e) The last I/O No.

On I/O assignment settings, make sure that the last I/O No. becomes less than 0FFFH.

If you set I/O assignment so that the last I/O No. exceeds 0FFFH, intelligent function module assignment error (error code: 2124, SP.UNIT LAY ERR.) happens.

(2) Notes when a MELSECWinCPU module automatically assigns the first XY.

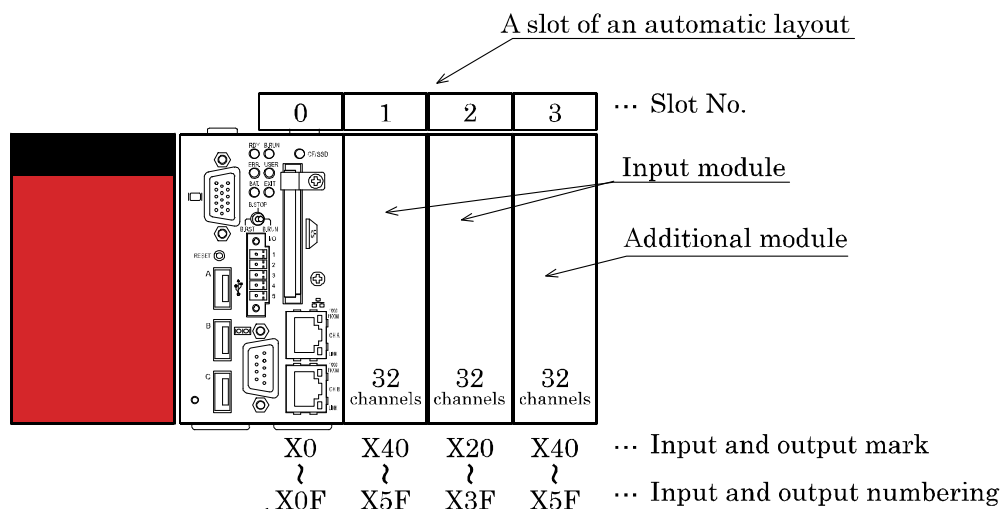
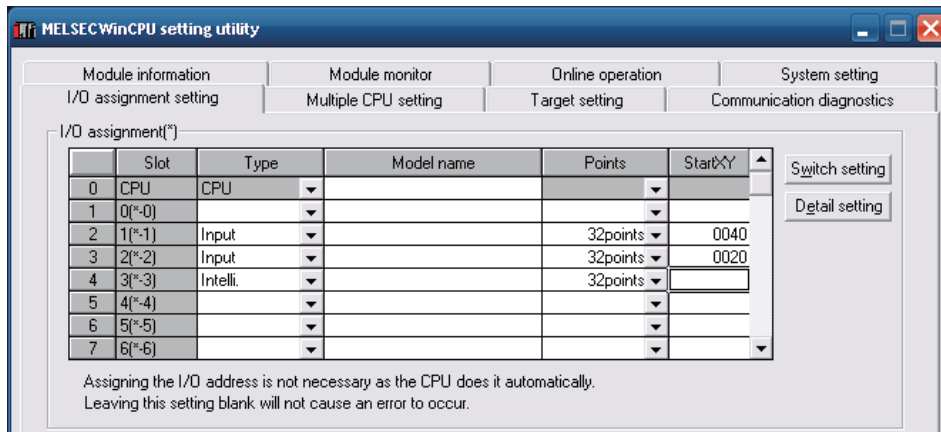
If the first XY was not set to an I/O assignment setting, a MELSECWinCPU module automatically assigns the first XY.

Therefore the first XY setting of each slot may conflict with the one which MELSECWinCPU module assigned in the following cases (a) and (b).

(a) On the first XY setting, you have swapped the front I/O No. with the rear one.

(b) There exist both the slot which you assign the first XY to and the slot which you did not do so (the slot MELSECWinCPU module automatically assigns).

Refer to the example of the clash of the first XY as follows.



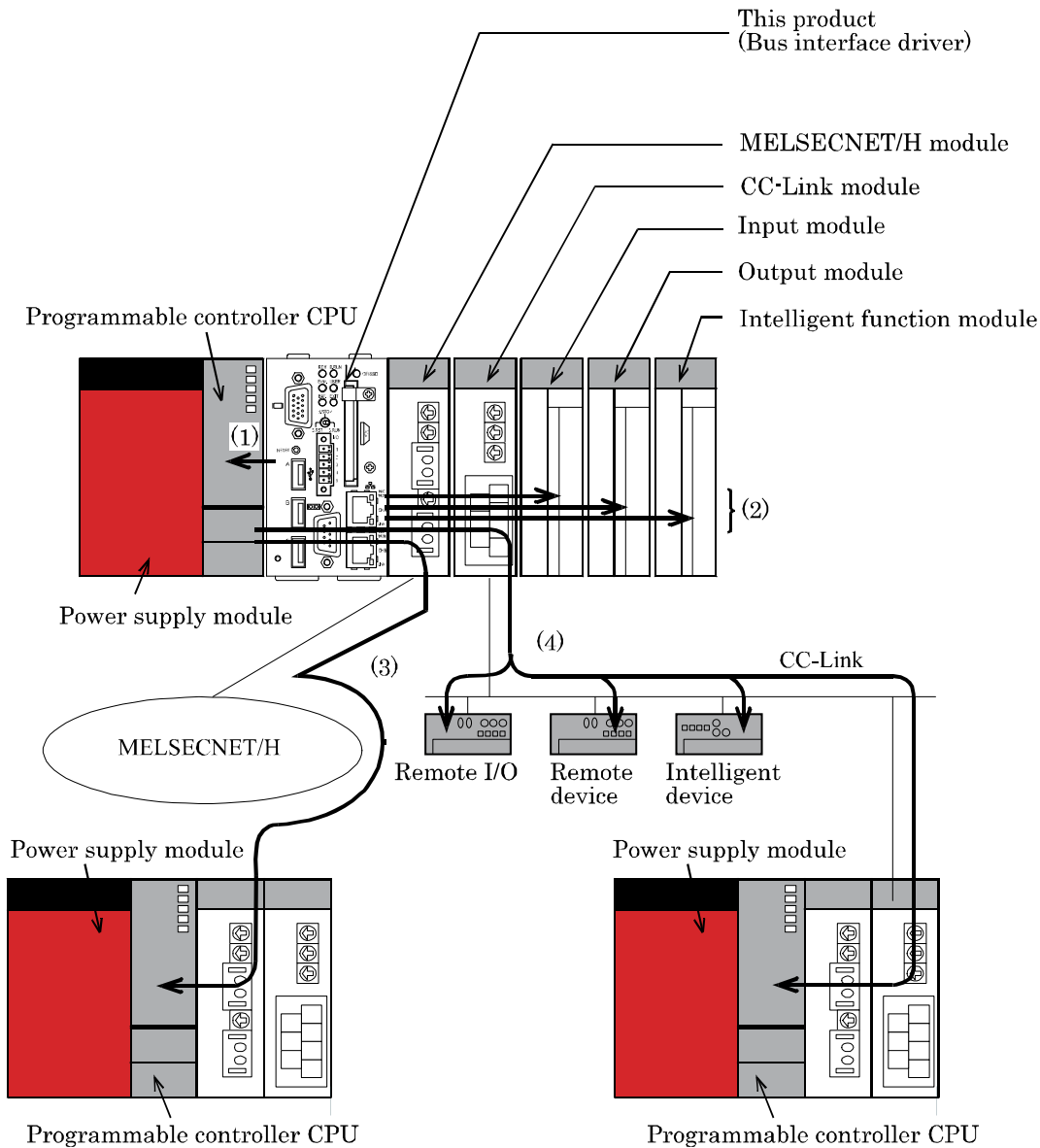
* It is divided by an auto, and 16 points of not used is touched by default.

Beginning XY is piled up!

Take care enough not to cause the clash of the first XY of each slot.

If the clash happens, intelligent function module assignment error (error code: 2107, SP.UNIT LAY ERR.) follows.

Access Forms



The Module can access various modules in the following forms.

- (1) Access another programmable controller CPU in the local system.
- (2) Access the I/O module or intelligent function module in the local system.
- (3) Access a programmable controller CPU via the MELSECNET/H module.
- (4) Access a remote I/O, remote device, intelligent device, or programmable controller CPU via the CC-Link module.

Multiple CPU Configuration

Multiple CPU Configuration Including this product

This product supports both of the single-CPU configuration with the Module as only one CPU and the multiple CPU configuration with this product combined with other CPUs. The maximum number of this product to be installed is only one.

Combination of CPUs

- Main base unit (Q3□B)

CPU No. 1 module		Number of CPU modules, module No. 2 and later, that can be installed							MELSEC WinCPU module	Maximum number of modules that can be installed (including module No. 1)
		High performance model QCPU	Process CPU	High-speed Universal model QCPU	Universal model QCPU		Motion CPU			
		Q02(H)CPU Q06HCPU Q12HCPU Q25HCPU	Q02PHCPU Q06PHCPU Q12PHCPU Q25PHCPU	Q03UDVCP Q04UDVCP Q06UDVCP Q13UDVCP Q26UDVCP	Q00UCPU Q01UCPU Q02UCPU	Q03UDCPU Q04UDHCPU Q06UDHCPU Q10UDHCPU Q13UDHCPU Q20UDHCPU Q26UDHCPU Q03UDECPU Q04UDEHCPU Q06UDEHCPU Q10UDEHCPU Q13UDEHCPU Q20UDEHCPU Q26UDEHCPU Q50UDEHCPU Q100UDEHCPU	Q172CPUN Q173CPUN Q172CPUN-T Q173CPUN-T Q172HCPU Q173HCPU Q172HCPU-T Q173HCPU-T	Q172DCPU Q173DCPU Q172DSCPU Q173DSCPU		
Basic model QCPU	Q00CPU Q01CPU	-	-	-	-	-	1	-	1	3
High performance model CPU	Q02(H)CPU Q06HCPU Q12HCPU Q25HCPU	3	3	3	-	3	3	-	1	4
Process CPU	Q02PHCPU Q06PHCPU Q12PHCPU Q25PHCPU	3	3	3	-	3	3	-	1	4
High-speed Universal model QCPU	Q03UDVCP Q04UDVCP Q06UDVCP Q13UDVCP Q26UDVCP	3	3	3	-	3	3	-	1	4
Universal model QCPU	Q00UCPU Q01UCPU Q02UCPU	-	-	-	-	-	1	-	1	3
	Q03UDCPU Q04UDHCPU Q06UDHCPU Q10UDHCPU Q13UDHCPU Q20UDHCPU Q26UDHCPU Q03UDECPU Q04UDEHCPU Q06UDEHCPU Q10UDEHCPU Q13UDEHCPU Q20UDEHCPU Q26UDEHCPU Q50UDEHCPU Q100UDEHCPU	3	3	3	-	3	3	-	1	4

- : Combination not possible.

- Multiple CPU high speed main base unit (Q3□DB)

CPU No. 1 module		Number of CPU modules, module No. 2 and later, that can be installed							MELSEC WinCPU module	Maximum number of modules that can be installed (including module No. 1)
		High performance model QCPU	Process CPU	High-speed Universal model QCPU	Universal model QCPU		Motion CPU			
		Q02(H)CPU Q06HCPU Q12HCPU Q25HCPU	Q02PHCPU Q06PHCPU Q12PHCPU Q25PHCPU	Q03UDVCP Q04UDVCP Q06UDVCP Q13UDVCP Q26UDVCP	Q00UCPU Q01UCPU Q02UCPU	Q03UDCPU Q04UDHCP Q06UDHCP Q10UDHCP Q13UDHCP Q20UDHCP Q26UDHCP Q03UDECP Q04UDEHCP Q06UDEHCP Q10UDEHCP Q13UDEHCP Q20UDEHCP Q26UDEHCP Q50UDEHCP Q100UDEHCP	Q172CPUN Q173CPUN Q172CPUN-T Q173CPUN-T Q172HCP Q173HCP Q172HCPU-T Q173HCPU-T	Q172DCPU Q173DCPU Q172DSCPU Q173DSCPU		
Basic model QCPU	Q00CPU Q01CPU	-	-	-	-	-	-	-	1	2
High performance model CPU	Q02(H)CPU Q06HCPU Q12HCPU Q25HCPU	3	3	3	-	3	-	-	1	4
Process CPU	Q02PHCPU Q06PHCPU Q12PHCPU Q25PHCPU	3	3	3	-	3	-	-	1	4
High-speed Universal model QCPU	Q03UDVCP Q04UDVCP Q06UDVCP Q13UDVCP Q26UDVCP	3	3	3	-	3	-	3	1	4
Universal model QCPU	Q00UCPU Q01UCPU Q02UCPU	-	-	-	-	-	-	-	1	2
	Q03UDCPU Q04UDHCP Q06UDHCP Q10UDHCP Q13UDHCP Q20UDHCP Q26UDHCP Q03UDECP Q04UDEHCP Q06UDEHCP Q10UDEHCP Q13UDEHCP Q20UDEHCP Q26UDEHCP Q50UDEHCP Q100UDEHCP	3	3	3	-	3	-	3	1	4

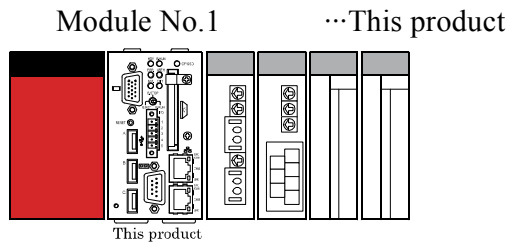
- : Combination not possible

⚠ CAUTION

- 1) This product cannot be Module No.1 in the multiple CPU configuration. The multiple CPU configuration requires a programmable controller CPU.
- 2) For the multiple CPU configuration, place this product at the right end of a series of CPUs.
- 3) Although a total of up to three programmable controller CPUs and motion CPUs can be installed, the number of modules installable is restricted by the power capacity of the power supply module (Q61P). Refer to “Restriction by Power Capacity” in “Notes” for details.

CPU Configuration Diagrams

- Single-CPU configuration with this product as only one CPU

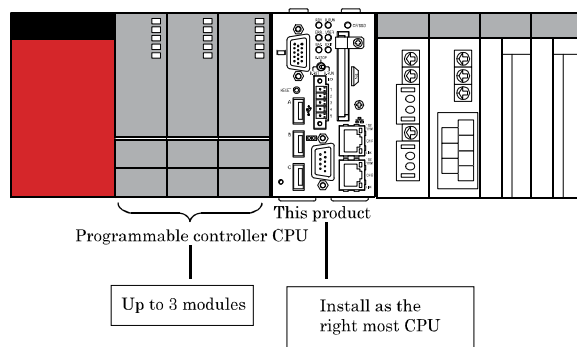


- Multiple CPU configuration with this product in combination with programmable controller CPUs

Maximum configuration with this product and three programmable controller CPUs

Modules No.1 - 3 …Programmable controller CPU

Module No. 4 …This product

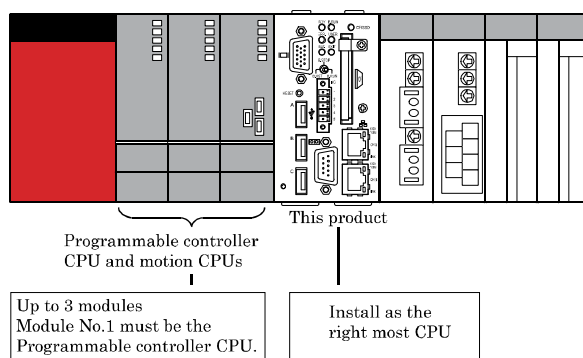


- Multiple CPU configuration with this module in combination with a programmable controller CPU and motion CPUs

Module No.1 …Programmable controller CPU

Modules No.2 - 3 …Motion CPU

Module No.4 …This product



⚠ CAUTION

The total number of programmable controller CPUs and motion CPUs installable is restricted by the power capacity of the Q Series power supply module (Q61P).

When a large number of I/O modules and intelligent function modules are used, the equivalent restriction applies to them in the same way. For details, refer to “Restriction by Power Capacity” in “Notes”.

Notes

Maximum Number of modules Installed and Maximum Number of I/O Points

- When installing single-CPU configuration

Refer to the maximum mountable number and the maximum I/O number as follows.

<p>Example of system expansion</p>	
<p>Maximum number of stages added</p>	<p>7 stages</p>
<p>Maximum number of I/O modules installed</p>	<p>64 modules</p>
<p>Maximum number of I/O points</p>	<p>4,096 points</p>
<p>Maximum number of MELSECNET/H modules installed</p>	<p>4 modules</p>
<p>Maximum number of CC-Link modules installed</p>	<p>8 modules</p>
<p>Maximum number of interrupt modules installed</p>	<p>1 module</p>
<p>Maximum number of other intelligent function modules installed</p>	<p>64 modules</p>
<p>Notes</p>	<ol style="list-style-type: none"> (1) Up to seven expansion base units can be added. (2) The total length of extension cables must be 13.2 m. (3) When using an extension cable, do not bundle it or route it near any main circuit (high voltage, large current) line. (4) Set the expansion stage numbers in ascending order without number duplication. (5) Connect each extension cable from the extension cable connector OUT on one base unit to the extension cable connector IN on the expansion base unit at the next stage. (6) Installing 65 modules or more results in an error.

- When installing Multiple-CPU configuration
Refer to “QCPU User’s Manual (Multiple CPU System)”.

Restriction by Power Capacity

The current consumption of this product is the total value of one of the main body and ones of peripheral devices. Take care that the summation of the current consumption of this product and ones of other modules should not exceed the power capacity of your Q series power module.

(For the actual current consumption values of modules, refer to their manuals.)

- Multiple CPU configuration with a CF card

As the Q61P cannot be used if the total current consumption of the modules exceeds 6A, consider using the Q64PN (power capacity = 5VDC/8.5A) instead.

Number of CPU modules			Main base unit	Total current consumption (A)	Remaining current capacity (A)	
Programmable controller CPU	Motion CPU	This product			Q61P (6A)	Judgement
Q25HCPU (0.64A)	Q173CPUN (1.25A)	Q10WCPU-W1 CF-1GB-B (3.10A) *1	Q312B (0.087A)			
0	0	1	1	3.187	2.813	O
1	0	1	1	3.827	2.173	O
2	0	1	1	4.467	1.533	O
3	0	1	1	5.107	0.893	Δ
1	1	1	1	5.007	0.923	Δ
2	1	1	1	5.717	0.283	Δ
1	2	1	1	6.907	- 0.907	× *2

The remaining current capacity is used as a criterion.

O: 1A to less than 3A: The system can grow.

Δ: 0A to less than 1A: The configuration is acceptable but not expandable.

×: Less than 0A: The configuration is not acceptable.

*1 Excluding the consumption current in the USB peripherals.

*2 The system can be configured by using a Q64PN instead.

- Configuration with many I/O modules and intelligent function modules

If the total current consumption by the modules on the main base unit, including this product and peripheral devices, exceeds the power capacity used, move I/O modules and intelligent function modules to an expansion module. The total current consumption by the modules on each base unit must not exceed the power capacity. If the system configuration is short of power capacity even with one expansion base unit added, add more than one expansion base unit.

7. Reset Specifications

The reset specifications are shown below.

The reset target varies depending on the status of system configuration or DIP switch.

Reset Specification Details with the Single-CPU Configuration

Reset type		Reset target	Reset method
Reset performed alongside a reset of this product	Reset caused by turning ON the power	MELSECWinCPU module and all modules on the bus	After you execute the shutdown procedure, turn ON the power.
	Reset caused by restarting the OS		Restart the OS.
Bus interface driver reset	Reset caused by a toggle switch	Bus interface driver and all modules on the bus	Set the toggle switch to B.RST.

Reset Specification Details with the Multiple CPU Configuration (MELSECWinCPU Module No. 2 - 4)

Reset type		Reset target	Reset method			
			SW-3 of DIP switch 2 set to OFF		SW-3 of DIP switch 2 set to ON	
			SW-5 of DIP switch 2 set to OFF	SW-5 of DIP switch 2 set to ON *1	SW-5 of DIP switch 2 set to OFF	SW-5 of DIP switch 2 set to ON *1
Reset performed alongside a reset of this product	Reset caused by turning ON the power	MELSECWinCPU module and all modules on the bus	After you execute the shutdown procedure, turn ON the power.*2, *8		After you execute the shutdown procedure, turn ON the power.*3, *8	
	Reset caused by resetting module No.1		-	Reset the module No.1. *4	-	Reset the module No.1. *4
	Reset caused by restarting the OS *5		Restart the OS and then reset the module No.1. *6, *8	-	Restart the OS and then reset the module No.1. *7	-
		MELSECWinCPU module	-		Restart the OS.	
Bus interface driver reset	Reset caused by resetting module No.1	Bus interface driver and all modules on the bus	Reset the module No. 1.		-	

- : Combination not possible

- *1: Resetting module No. 1 causes the MELSECWinCPU module and all modules on the bus to be reset, and the MELSECWinCPU module shuts down. Using this method when the OS is operating will cause the OS to stop without first performing shutdown processing, which may prevent the OS from restarting correctly.
- *2: After the shutdown procedure is executed, the main station enters the CPU DOWN status, and a multiple CPU down error is detected on the other modules. For multiple CPU configurations in which only high performance model QCPU, process CPU, and motion CPU (other than Q17nDCPU and Q17nDSCPU) modules are used for the other modules, multiple CPU down errors may not be detected by other modules due to the parameter settings.
- *3: The status after the shutdown procedure is executed (the error detection status of other modules and the status of the MELSECWinCPU module as seen from other modules) varies depending on the parameters. For details, see the following table.

<< Multiple CPU setting >> operation mode "All station stop by stop error of CPU _n " ("n" is the number of the MELSECWinCPU module)	Module controlling the MELSECWinCPU	
	Present	Not present
Selected	< Error detection status of other modules > Multiple CPU down error < Status of the MELSECWinCPU module as seen from other modules > RESET	
Cleared	< Error detection status of other modules > Multiple CPU down error < Status of the MELSECWinCPU module as seen from other modules > RESET	< Error detection status of other modules > No error < Status of the MELSECWinCPU module as seen from other modules > The status prior to the execution of the shutdown procedure is maintained.

- *4: When the MELSECWinCPU module is shut down, even if you reset module No. 1, the MELSECWinCPU module will not start.
- *5: When SW-3 of DIP switch 2 is set to ON, the target of the reset operation varies depending on the parameters. For details, see the following table.

<< Multiple CPU setting >> operation mode "All station stop by stop error of CPU _n " ("n" is the number of the MELSECWinCPU module)	Module controlling the MELSECWinCPU	
	Present	Not present
Selected	MELSECWinCPU module and all modules on the bus	
Cleared	MELSECWinCPU module and all modules on the bus	MELSECWinCPU module

- *6: When the OS is restarted, a multiple CPU down error is detected on the other modules. After the OS is restarted, a multiple CPU down error is also detected on the main station. For multiple CPU configurations in which only high performance model QCPU, process CPU, and motion CPU (other than Q17nDCPU and Q17nDSCPU) modules are used for the other modules, the OS may start without any errors being detected on the other modules and the main station, but the OS has not started correctly as a system in this situation, so reset module No. 1 to reset the bus interface driver and all modules on the bus.
- *7: After the OS is restarted, the main station enters the RESET status, and a multiple CPU down error is detected on the other modules. Also, when the MELSECWinCPU module starts, an error is detected on the main station, so reset module No. 1 to reset the bus interface driver and all modules on the bus.
- *8: If a multiple CPU down error is not detected by the other modules and the MELSECWinCPU module is shut down or is restarting, running a personal computer diagnostic or system monitor application from a GX Works2 program that is connected to one of the other modules of the multiple CPU system will take a long time to display information on the screen or may result in a time out.

Reset Procedure of a MELSECWinCPU module and All the Modules on a Bus

Reset by Recycling the Power Supply

- (1) Shut down the OS on the screen (or set the shutdown command input to ON).
- (2) Check that the EXIT LED on this product comes on (or that the shutdown completion output is turned ON).
- (3) Turn the power off.
- (4) Turn the power back on.

Restarting the OS (DIP switch 2 with SW-5 set to OFF)

- (1) Shut down the OS on the screen, then restart it.
- (2) In the multiple CPU configuration, reset CPU Module No.1 after the completion of OS boot up.

Reset of Module No.1 (programmable controller CPU) (DIP switch 2 with SW-5 set to ON)

- (1) Reset the switch on Module No.1.

CAUTION

- Be sure to give ON time of a shutdown directions input as a range of 0.7sec - 3sec.
 - If 3 or more secs are turned on, re-starting of a MELSECWinCPU module will become impossible. (The time of a re-injection of a power supply is included.) When this operation is performed and re-starting of a MELSECWinCPU module becomes impossible, you can re-start the MELSECWinCPU module by setting the shutdown command input to OFF, and then inputting the shutdown command again (ON time: 0.7sec - 3sec) in the state of the power turned ON.(The MELSECWinCPU module cannot be re-stated simply by setting the shutdown command input to OFF and turning the power ON again.)
 - The EXIT LED comes on only when you shut down Windows or hardware reset.
 - When the MELSECWinCPU module is reset in a multiple CPU configuration, a multiple CPU down error may not be detected on other modules depending on the parameters and on SW-3 of DIP switch 2. For details, refer to "List for Detecting a Multiple CPU Down Error" in this chapter.
 - When SW-3 of DIP switch 2 is set to ON in a multiple CPU configuration and a reset is caused by restarting the OS, a control bus error (error code: 1416), I/O module comparison error (error code: 2000), or multiple CPU error (error code: 7000) may be detected on the main station when the MELSECWinCPU module starts. If an error is detected, reset module No. 1 to reset the bus interface driver and all modules on the bus.
 - If a multiple CPU down error is not detected by the other modules and the MELSECWinCPU is not operating (it is shut down or is restarting), running a personal computer diagnostic or system monitor application from a GX Works2 program that is connected to one of the other modules of the multiple CPU system will take a long time to display the application or may result in a time out.
 - If you reset this product or restart the OS in the multiple CPU configuration, other CPUs detect a multiple CPU down error.
 - While a MELSECWinCPU module is doing a shutdown procedure (EXIT LED is lighting), the condition of the main station becomes resetting or CPU DOWN.
 - If you reset the 1st station while SW-5 of DIP switch 2 is ON using multiple CPU configuration, a MELSECWinCPU module will also be reset and becomes the condition without any power. If you did so while OS is working, it means that you finished the system without a shutdown procedure and OS may not work in order after the next reboot.
 - After you turn off power supply to this product, wait for more than 5 seconds till the next power ON.
-

List for Detecting a Multiple CPU Down Error

When SW-3 of DIP switch 2 is set to OFF

Reset type	<< Multiple CPU setting >> operation mode "All station stop by stop error of CPU _n " ("n" is the number of the MELSECWinCPU module) check box - selected		<< Multiple CPU setting >> operation mode "All station stop by stop error of CPU _n " ("n" is the number of the MELSECWinCPU module) check box - cleared	
	Module controlling the MELSECWinCPU (Present)	Module controlling the MELSECWinCPU (Not present)	Module controlling the MELSECWinCPU (Present)	Module controlling the MELSECWinCPU (Not present)
Reset by shut down	○	○	○*1	○*1
Reset by Windows restart	○	○	○*1	○*1

○ : Detect a multiple CPU down error × : Not detect a multiple CPU down error

When SW-3 of DIP switch 2 is set to ON

Reset type	<< Multiple CPU setting >> operation mode "All station stop by stop error of CPU _n " ("n" is the number of the MELSECWinCPU module) check box - selected		<< Multiple CPU setting >> operation mode "All station stop by stop error of CPU _n " ("n" is the number of the MELSECWinCPU module) check box - cleared	
	Module controlling the MELSECWinCPU (Present)	Module controlling the MELSECWinCPU (Not present)	Module controlling the MELSECWinCPU (Present)	Module controlling the MELSECWinCPU (Not present)
Reset by shut down	○	○	○	×
Reset by Windows restart	○	○	○	×

○ : Detect a multiple CPU down error × : Not detect a multiple CPU down error

*1: For multiple CPU configurations that do not include any high performance model QCPU, process CPU, or motion CPU (other than Q17nDCPU and Q17nDSCPU) modules, multiple CPU down errors may not be detected by other modules. Even if multiple CPU down errors are not detected, the OS has not started correctly as a system, so switch the power from off to on if the reset was caused by a shut down or reset module No. 1 if the reset was caused by restarting Windows.

Reset Procedure of Bus Interface Driver and All the Modules on a Bus

Single-CPU configuration with this product as only one CPU Module

- (1) Stop the user application.
- (2) Set the toggle switch to B.RST (hold the switch at the B.RST position for two seconds, then release it).
- (3) Set the toggle switch to B.RUN.
- (4) Execute the user application.

Multiple CPU configuration (DIP switch 2 with SW-5 set to OFF)

- (1) Stop the user application.
- (2) Reset CPU Module No.1.
- (3) Execute the user application.

⚠ CAUTION

In the multiple CPU configuration, reset the bus interface driver by resetting CPU Module No.1 (programmable controller CPU). Setting the toggle switch to B.RST without resetting the CPU Module No.1, results in a multiple CPU down error on another CPU module.

8. Troubleshooting

Tips for Better Troubleshooting

Key points for establishing a fastersystem is to minimize the number of problems developing and, once a problem has developed, identifying the cause as soon as possible.

You should perform troubleshooting with the following three basic points in mind.

(1) Check visually

Check the following items:

- 1) Behavior of external devices
- 2) Existence or absence of power supply
- 3) Wiring state (connection cable)
- 4) LED indication (Power indicator LED)

After checking the Module for items 1) - 4), connect the Module to external devices and check the behavior of the user program.

(2) Identify the problem

Take the following steps to observe how the symptom changes:

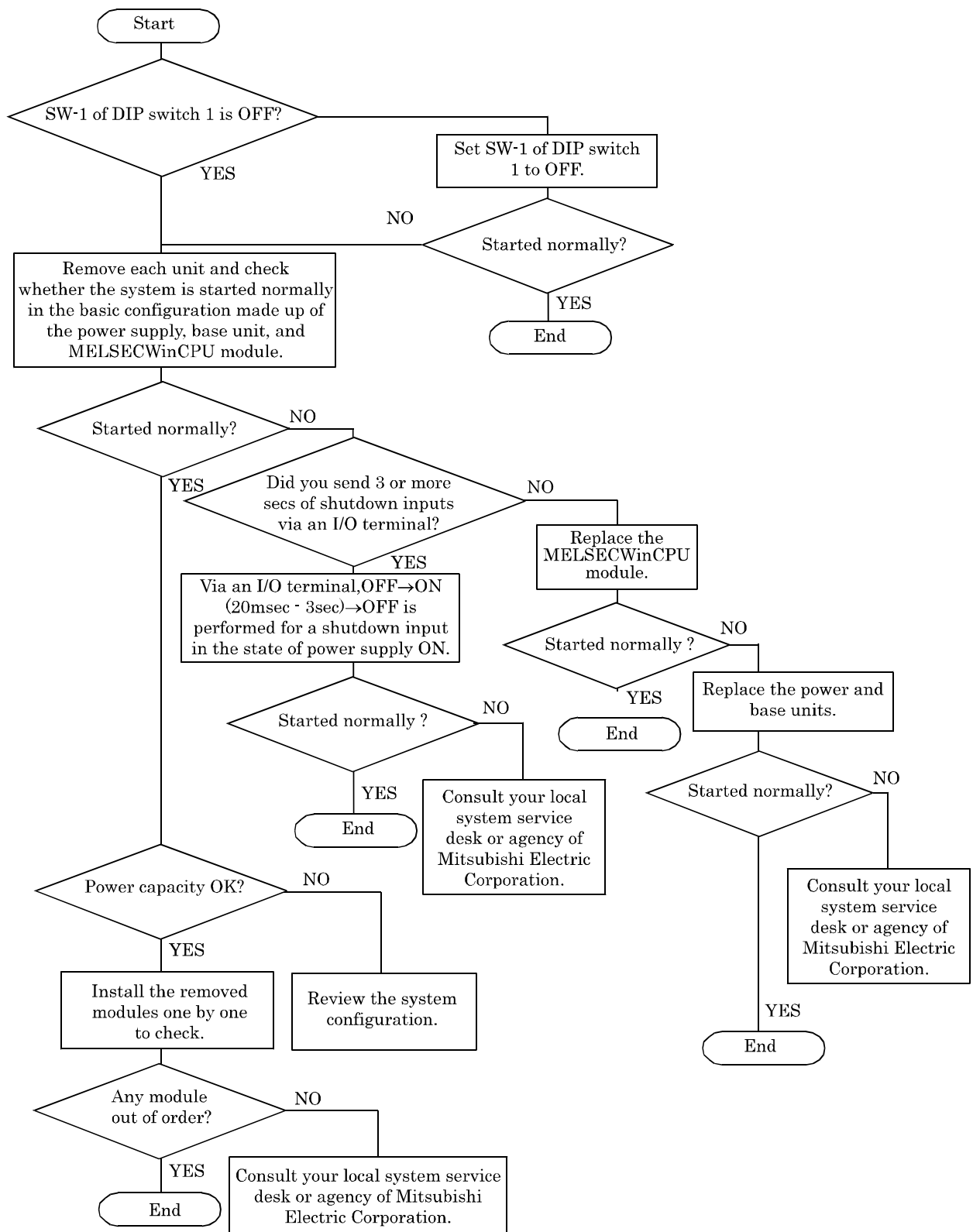
- 1) Change the input state to check whether the correct change can be read by the test program.
- 2) Turning the output on and off repeatedly to check whether the state of the external device changes correctly.

(3) Narrow the range down

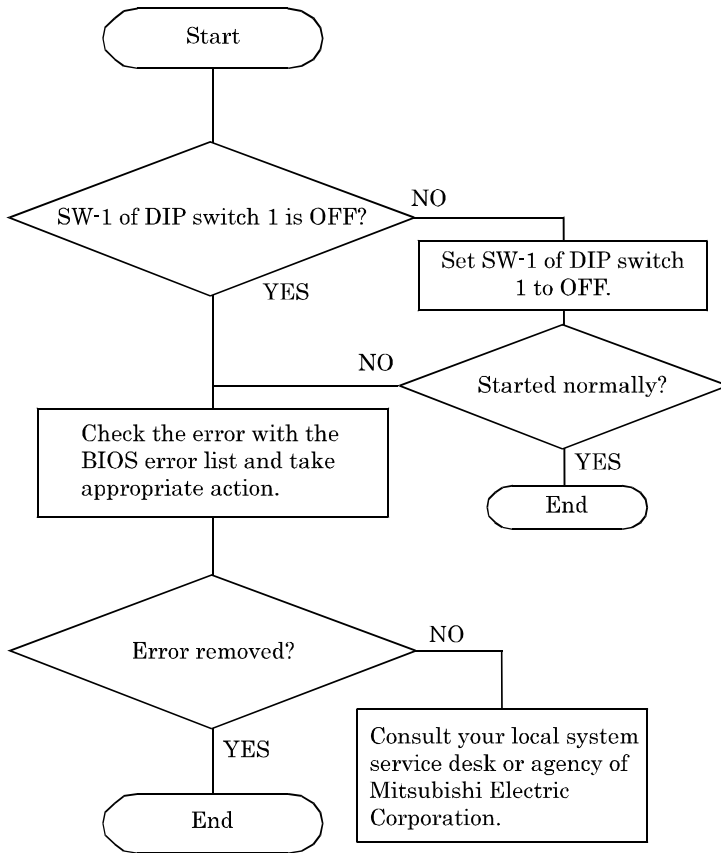
Check the results of (1) and (2) above to locate the fault in one of the following options:

- 1) This program side or external device side
- 2) This program or any other Module
- 3) Connection cable
- 4) User program

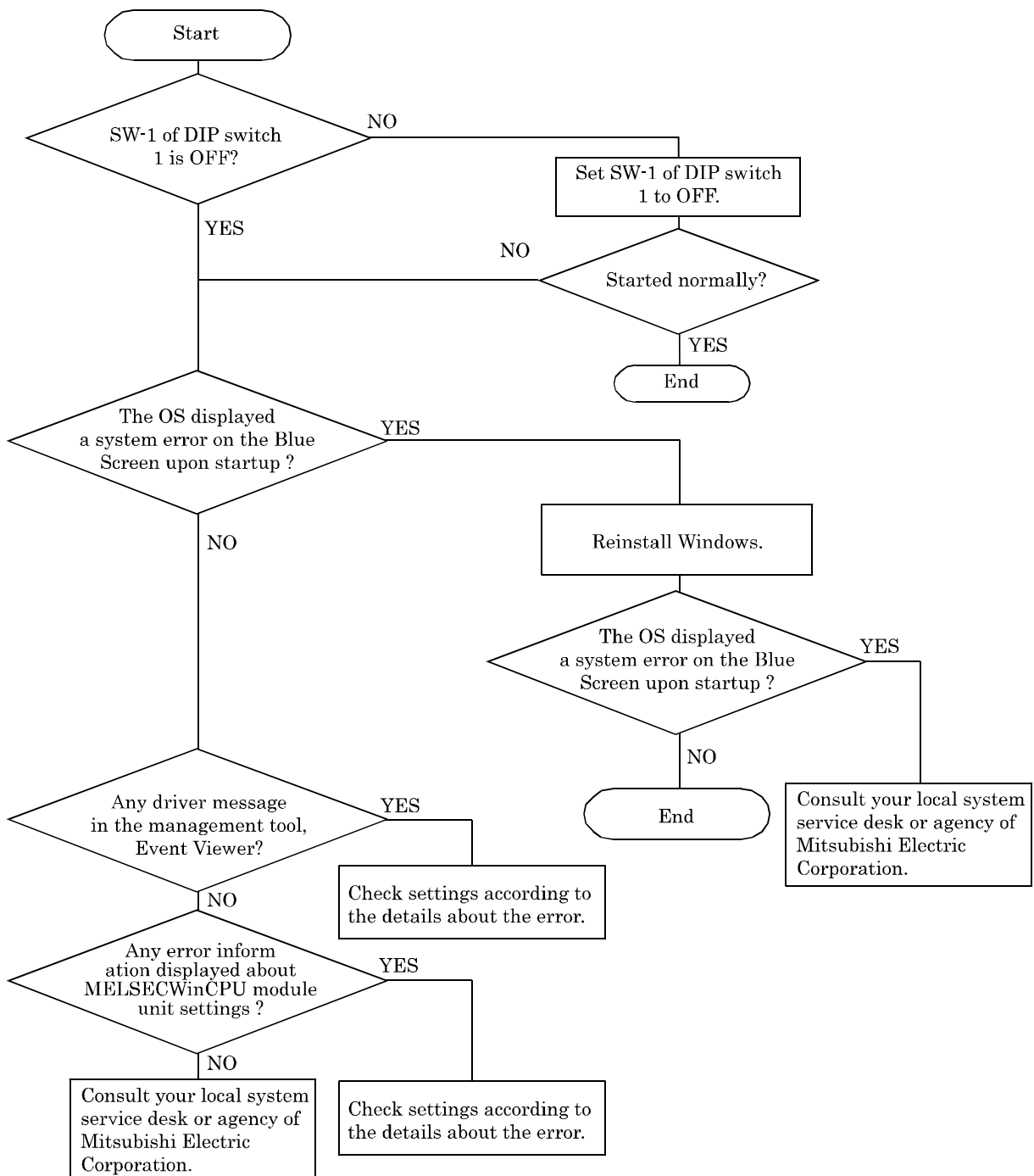
This product Won't Start Normally



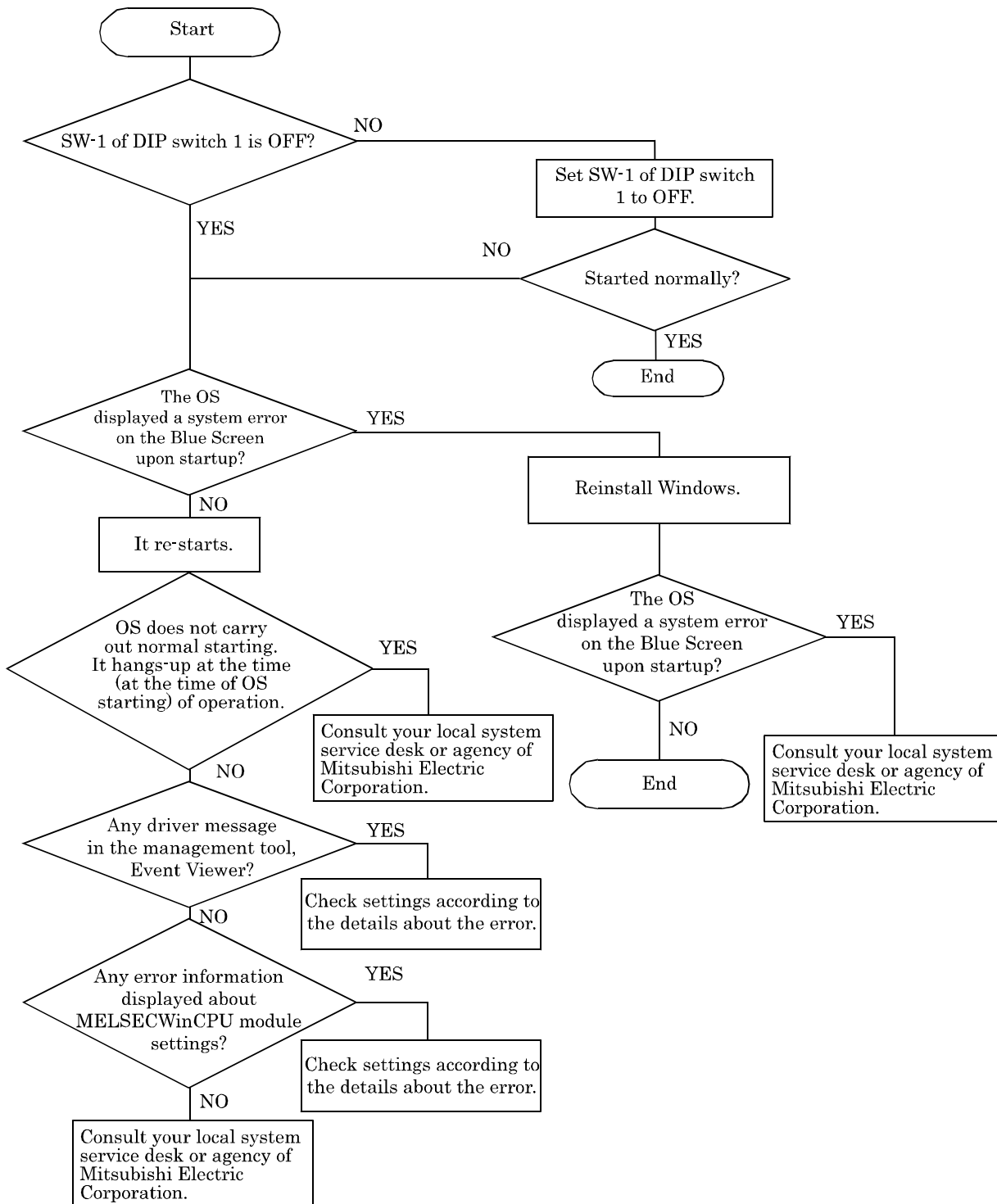
This product Starts with a BIOS Error displayed



The OS Won't Start Normally



It hangs-up at the time (after OS starting) of operation



BIOS Error

One or more of the following messages may be displayed if the BIOS detects an error during the POST. If the items not described below appear frequently, the product should be repaired.

CMOS battery has failed

CMOS battery is no longer functional. It should be replaced.

Refer to “Appendix 2 Battery” about the exchange of a battery.

Error encountered initializing hard drive

CF card or SSD cannot be initialized. If you installed a CF card, check if it is installed properly.

Error initializing hard disk controller

Cannot initialize a controller.

Keyboard error or no keyboard present

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD or NO ERRORS. This will cause the BIOS to ignore the missing keyboard and continue the boot.

Memory address error at...

Indicates a memory address error at a specific location.

Press a key to REBOOT

This will be displayed at the bottom of the screen when an error occurs that requires you to reboot.

Press F1 to disable NMI, F2 to REBOOT

BIOS detects a Non-maskable Interrupt (NMI) condition during boot.

System halted, (CTRL-ALT-DEL) to REBOOT...

Indicates the system should be rebooted. Press and hold down the <Ctrl>+ <Alt>+ keys.

Hard disk(s) fail (80)

HDD reset failed. If you installed a CF card, check if it is installed properly.

Hard disk(s) fail (40)

HDD controller diagnostics failed.

Hard disk(s) fail (20)

HDD initialization error. If you installed a CF card, check if it is installed properly.

Hard disk(s) fail (08)

Sector Verify failed. If you installed a CF card, check if it is installed properly.

Keyboard error or no keyboard present

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

BIOS ROM checksum error – System halted

The check sum of ROM address F0000H-FFFFFFH is wrong.

Memory test fail

A BIOS error has occurred in an onboard memory test.

NTLDR is missing

or

DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER

If you are using the -CFJ or -CFE model:

- Insert a CF card.
- Set "1." to "Ch1 M." under "Hard Disk Boot Priority" in the BIOS settings.

⚠ CAUTION

For the -CFJ and -CFE models, do not turn the power on with the CF card removed.
The "Hard Disk Boot Priority" setting of BIOS may be changed and one of the above BIOS errors may occur when the power is turned on.

Necessary Information on your Inquiries

If you would like to make an inquiry for us after judging the breakdown of this product or from other reasons, you have to tell us following status and situation.

Information of a problem

Q1. Information of the product

Product name _____ Serial No. _____

Q2. What happens as the problem

- No screen appears even if turning power ON LED does not light
 Peripheral devices cannot be recognized I/O function cannot work Communication cannot work
 Others: _____

Q3. Situations before the problem happened

- Installed software Added peripheral devices External factors (thunder, water or oil hazard, etc.)
 None

Q4. Solutions after the problem happened

- Changed it to a compatible product and got normal operation
 Checked it under isolated construction and judged that it would have problem
 Others: _____

Q5. Confirmation results by diagnosis program, sample program, etc.

Result: _____

Q6. Usage status

Purchase date (approximate) Month: _____ Year: _____ Purchase number: _____ Pcs.

Q7. The date when the problem happened and repeatability

The date when the problem happened Day: _____ Month: _____ Year: _____.

Frequency: Always Quite frequently (____times / ____hours) Sometimes (____times / ____hours)

The condition to happen: If there exist any special conditions to cause the problem

Q8. Usage environment and operating time

- Inside the control panel in a factory or similar conditions Outdoors
 8 hours / day works 24 hours / day works
 Others: _____

9. List of Options and Recommended Parts

List of Options

Type	Name	Model Name	Maker
CF card (FIX DISK types)	CompactFlash 1GB	CF-1GB-B	CONTEC CO., LTD.
	CompactFlash 2GB	CF-2GB-B	CONTEC CO., LTD.
	CompactFlash 4GB	CF-4GB-B	CONTEC CO., LTD.
	CompactFlash 8GB	CF-8GB-B	CONTEC CO., LTD.
TFT color liquid-crystal display (Analog RGB types)	15 inch (1024 × 768 dots) Panel mounted type	FPD-H21XT-AC	CONTEC CO., LTD.
	12.1 inch (800 × 600 dots) Panel mounted type	FPD-L21ST-AC	CONTEC CO., LTD.
	10.4 inch (640 × 480 dots) Panel mounted type	FPD-M21VT-AC	CONTEC CO., LTD.
Touchpanel cable	RS-232C cable (2m)	IPC-CBL3-2	CONTEC CO., LTD.
	RS-232C cable (5m)	IPC-CBL3-5	CONTEC CO., LTD.

List of Recommended Parts

Name	Model Name	Maker
USB keyboard	ANB-00035	Microsoft®
USB mouse	D1T-00007	Microsoft®
USB HUB	UPort 404	MOXA

10. Appendix

Appendix 1. Resources

Memory Map

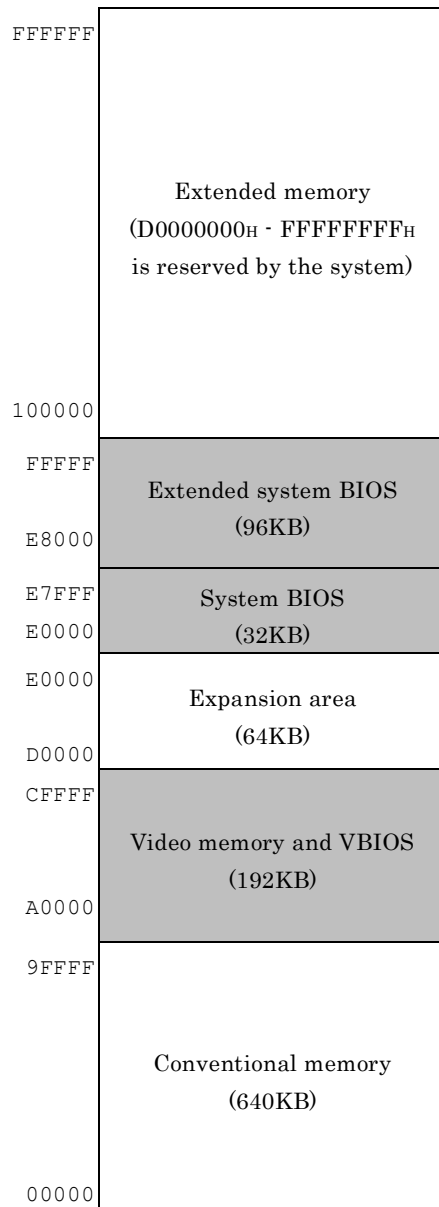


Figure 10.1 Memory map

I/O port address

Table 10.1 I/O port address

Address	Size	Description
0000H - 000FH	16 bytes	DMA controller
0010H - 001FH	16 bytes	Reserved
0020H - 0021H	2 bytes	PIC interrupt controller
0022H - 003FH	30 bytes	Reserved
0040H - 0043H	4 bytes	System timer 1
0044H - 005FH	24 bytes	Reserved
0060H	1 byte	Keyboard controller
0061H	1 byte	NMI, speaker controller
0062H - 0063H	2 bytes	Reserved
0064H	1 byte	Keyboard controller
0070H - 0073H	4 bytes	RTC real time clock
0074H - 007FH	12 bytes	Reserved
0080H - 0090H	17 bytes	DMA page register
00A0H - 00A1H	2 bytes	Interrupt controller 2
00B2H - 00B3H	2 bytes	Reserved
00C0H - 00DEH	31 bytes	DMA controller 2
00E0H - 00EFH	16 bytes	Reserved
00F0H - 00FFH	16 bytes	Arithmetic processor for numerical values
0170H - 0177H	8 bytes	Secondary IDE controller
01F0H - 01F7H	8 bytes	Primary IDE controller
0200H - 0207H	8 bytes	Reserved
0330H - 0331H	2 bytes	Reserved
0376H - 0377H	2 bytes	Secondary IDE
0120H - 0127H	8 bytes	Reserved
0274H - 0277H	4 bytes	Reserved (ISA PnP)
0290H - 029FH	16 bytes	Hardware monitor
0388H - 038DH	6 bytes	Reserved
03B0H - 03BBH	12 bytes	Video (Monochrome)
03C0H - 03DFH	32 bytes	Video (VGA)
03F6H	1 byte	Primary IDE
03F8H - 03FFH	8 bytes	COM1
04D0H - 04D1H	2 bytes	Interrupt setting register (Edge/level triggered PIC)
0530H - 0537H	8 bytes	Reserved (Windows Sound System)
0CF8H - 0CFFH	4 bytes	PCI configuration register
0CF9H	1 byte	Turbo and reset control register
D000H - FFFFH	12287 bytes	Reserved
0440H - 044FH	16 byte	Reserved
0800H - 080FH	16 byte	Reserved
4000H - 400FH	16 byte	Reserved
1000H - 107FH	128 byte	Reserved
1180H - 11BFH	64 byte	Reserved

Interrupt Level List

Table 10.2 Hardware Interrupt Levels (Factory Settings)

Type	8259	Priority	Description	Vector
NMI		High	-I/O CH CK or WDT	02H
IRQ0	MASTER	↑	Timer 0	08H
IRQ1	”		Keyboard	09H
IRQ2	”		Interrupt controller 2 (slave)	0AH
IRQ8	SLAVE		Real-time clock	70H
IRQ9	”		System reserved	71H
IRQ10	”		System reserved	72H
IRQ11	”		System reserved	73H
IRQ12	”		System reserved	74H
IRQ13	”		Co-processor	75H
IRQ14	”		IDE	76H
IRQ15	”		System reserved	77H
IRQ3	MASTER		System reserved	0BH
IRQ4	”		Serial port 1(COM1)	0CH
IRQ5	”		System reserved	0DH
IRQ6	”	↓	System reserved	0EH
IRQ7	”	Low	System reserved	0FH

(*) The interruption list is one when APIC is not used.

APIC is used on Windows, so the interruption of PCI devices is assigned behind IRQ16.

Appendix 2. Battery

Battery Specification

This product uses the following battery.

- Type	: Lithium primary battery
- Model	: BR-1/2AA
- Maker	: Panasonic
- Nominal voltage	: 3V
- Nominal capacity	: 1000mAh
- Lithium content	: 1g or less

⚠ CAUTION

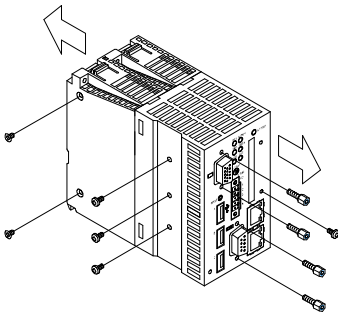
- You should treat it according to exportation regulations when you export the product with the battery including lithium.
When we ship it, we packaged it according to exportation regulations. But if you export it after re-packaging or unpacking, you should export it according to IATA Dangerous Goods Regulations, IMDG Code and other exportation regulations of each countries.
For details, consult your transporter.
- We charge for battery exchange. Please consult your local Mitsubishi representative.

Appendix 3. Disposal of Battery

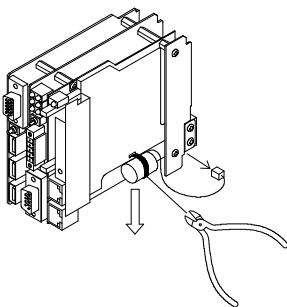
Remove of battery

Remove the battery as follows

- (1) Remove screws and take the case off.



- (2) Cut the tie binding the battery and remove the battery



Disposal of battery

When dumping the product, treat it as an industrial waste.

When disposing of a battery, separate it according to regional laws of your area.

⚠ CAUTION

EU has a separate collection system for used batteries. Dispose it correctly at a collection / recycle center in your area.

Mitsubishi programmable controller CPU shows a following symbol mark on the battery or the package of the product including a battery.



Note: This symbol mark is valid in EU only.

This symbol mark is listed on the 20th clause “Information for an end user” of directive 2006/66/EC of the European parliament and of the council and on the attached document II.

The symbol mark above indicates that the battery should be dumped separately from normal wastes.

Exportation of Battery

According to directive 2006/66/EC of the European parliament and of the council, you should keep the following procedures when selling or exporting a battery or the product with a battery.

- The indication of the symbol mark on a battery, a product or a package.
- Description about the symbol mark in the product guide.

(1) The indication of the symbol mark.

If you sell or export the battery or the product with the battery which does not display the symbol mark to EU after 2008/09/26, indicate the symbol mark of “Appendix 3 Disposal of Battery” on the main body of a product or on its package.

(2) Addition of the explanation to a product guide

When you export the product with our sequencer to EU after 2008/09/26 and you attach the product guide of our programmable controller CPU to it, attach the latest product guide which has the explanation of the symbol mark of a battery.

When you don't attach the product guide of our programmable controller CPU or an attached product guide is an older one which doesn't have the explanation of the symbol mark, newly describe the explanation of the symbol mark on the product guide of each product.

⚠ CAUTION

The battery and the product with a battery produced before the enforcement of directive 2006/66/EC are also come under the directive.

Appendix 4. EMC directive

If you want to apply EMC directive and low voltage directive to MELSECWinCPU system, refer to QCPU User's Manual (Hardware Design, Maintenance and Inspection).

Appendix 5. Backup of built-in SSD

This section shows how to use the backup function of the BIOS of MELSECWinCPU.

This function supports data backup and rewrite from MELSECWinCPU built-in SSD for OS or from a CF card to another CF card.

⚠ CAUTION

- Before performing backup, read the licensing terms of your operating system carefully so that the backup is carried out within the scope of given license.
- To use the CF Backup feature, a separately-available CF card for backup is required. Using the CF card that is not our optional parts can be the cause of unidentified problems and it must be ensured that the CF card works with your system without problem before using this feature.

Refer to all devices to be used for backup as follows.

Table 10.3 List of Devices

No.	Device	Comment
1	The main body of MELSECWinCPU	
2	Display	
3	USB keyboard	
4	CF card	Used to reserve backup data. (4GB *1)

*1 If a CF card that is not one of our optional parts is used, even if the built-in SSD and the CF card have the same capacity, the backup function may not be carried out correctly due to differences in the number of physical sectors on the built-in SSD and CF card.

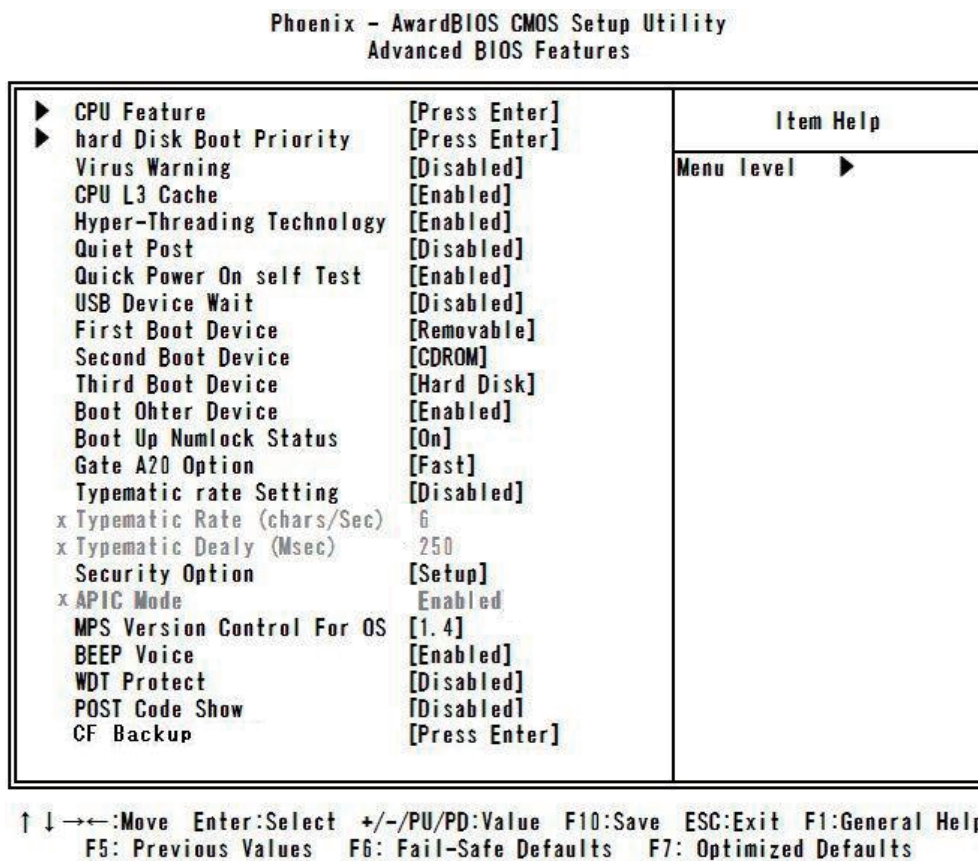
Use a CF card that is one of our optional parts or a CF card that has a capacity greater than that of the built-in SSD.

Backup procedure

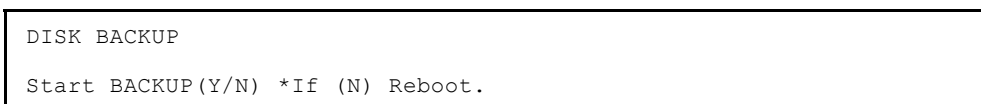
How to backup the data of build-in SSD for OS to another CF card

- (1) Connect a display and a keyboard to MELSECWinCPU. Then insert a CF card to the slot.
- (2) Turn power on and the system boots up. The message "Press DEL to enter SETUP" will be shown at the left-bottom corner of the screen. Then press key and BIOS setup menu will be shown.

- (3) Select "Advanced BIOS Features" -> "CF Backup". Then press ENTER key.



- (4) Following message will be shown. Press Y key.



- (5) Connected drives will be shown as follows. Select built-in SSD for OS as "Source Disk". In the following figure, "4GB NANDrive" (SSD) and "MITSUBISHI ELECTRIC" (CF card) are connected. For backup, press A key and select SSD as "Source Disk".



- (6) Next select the CF card for backup (A or B key) as “Destination Disk”. In the following figure, only B is selectable as “Destination Disk”.

```
Now Connect Disk
Select Destination Disk.

B: MITSUBISHI ELECTRIC
```

- (7) Next the following message will be shown. If you want to verify data when copying, press Y key.

```
Need Verify (Y/N)
```

- (8) Copy procedure will start.

```
DISK BACKUP

0000AB00/006CFD00 Sectors
```

- (9) The following message will be shown after copy procedure has finished. Press alphabet key A-Z and reboot the system.

```
BACKUP finish, Press any key reboot.
```

- (10) When the screen of BIOS appears in rebooting, turn the power off. That finishes the backup procedure.

(*) You cannot boot the OS using the CF card for backup.

Rewrite procedure from the CF card for backup to built-in SSD for OS

For previous procedure, rewrite procedure will be done by selecting the CF card for backup as “Source Disk” and built-in SSD for OS as “Destination Disk”.

Other procedures are the same as the backup.

Appendix 6. When a CC-Link IE Field Network Module is used in the MELSECWinCPU Module

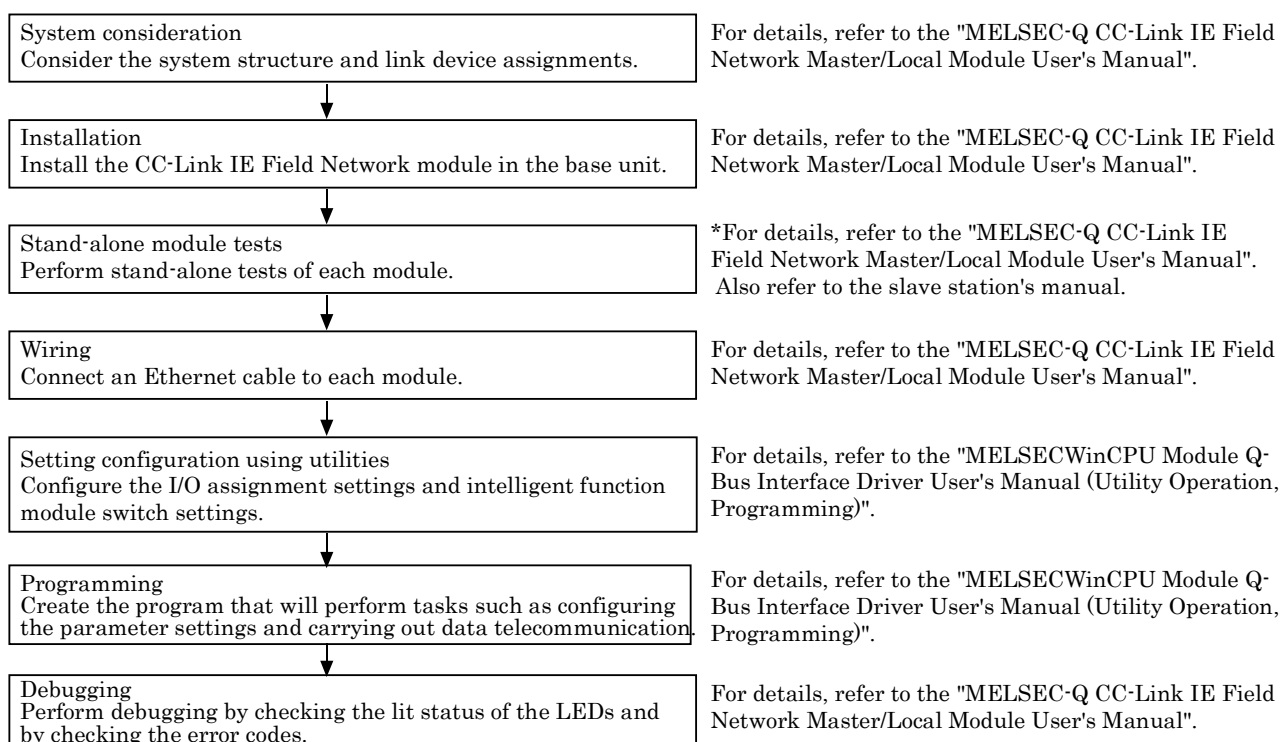
Supported CC-Link IE Field Network modules

The CC-Link IE Field Network modules supported by the MELSECWinCPU module are shown below.

Model name	Upper 5 serial number digits
QJ71GF11-T2	"14042" or later ^{*1}

*1: For details on the supported versions of the sub-master and IP packet relay functions, refer to the "CC-Link IE Field Network Master/Local Module User's Manual".

Procedures before Starting



Setting configuration using utilities

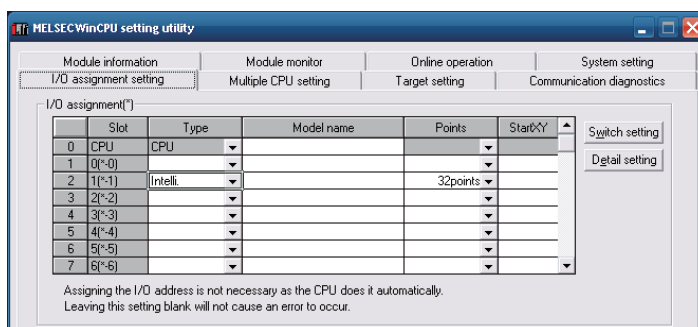
Use the MELSECWinCPU setting utility to configure and write to the MELSECWinCPU module the I/O assignment and intelligent function module switch settings.

(a) I/O assignment setting

Add the CC-Link IE Field Network module under "I/O assignment".

- "I/O assignment setting" tab of the MELSECWinCPU setting utility

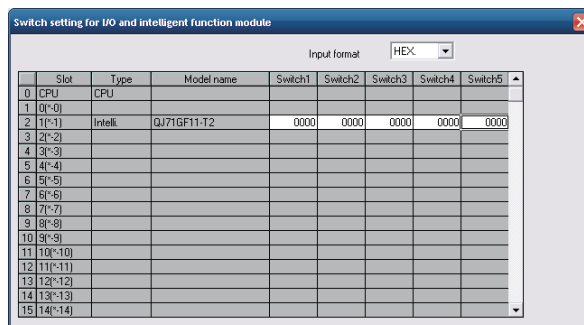
For details, refer to the "MELSECWinCPU Module Q-Bus Interface Driver User's Manual (Utility Operation, Programming)".



(b) Intelligent function module switch setting

Enter settings in the "Switch1" to "Switch5" columns.


- On the "I/O assignment setting" tab of the MELSECWinCPU setting utility, click "Switch setting".





Specify values that are within the ranges shown in the tables on the following page.

Point
- If one of the settings in the "Switch1" to "Switch3" columns is out of range, the MELSECWinCPU module will start as the master station (in offline mode) of network number 1, and an error will occur. The error code is stored in the switch setting parameter check result (address: 7BFDH).
- If one of the settings in the "Switch4" column is out of range, an error will occur when a program is executed. The error code is stored in the parameter telecommunication result (address: 7BFEH).

- Setting the master station parameters



Item	Content	Setting range
Switch 1	Set the network number.  Network No. : 01 _H - EF _H (1 - 239)	0001 _H - 00EF _H
Switch 2	Specify 0000 _H .	0000 _H (fixed)
Switch 3		
Switch 4	(1) When the sub-master function is not used. - Specify 0000 _H . (2) Operation when the sub-master function is used and the data link is reopened upon the master station recovering from an abnormal condition. - 0000 _H : Data link reopened as a master station upon the master station recovering from an abnormal condition. - 0002 _H : Data link reopened as a sub-master station upon the master station recovering from an abnormal condition	0000 _H , 0002 _H
Switch 5	Specify 0000 _H .	0000 _H (fixed)

- Setting the sub-master station parameters

Item	Content	Setting range
Switch 1	Set the network number.  Network No. : 01 _H - EF _H (1 - 239)	0001 _H - 00EF _H
Switch 2	Set the station number.  Station No. : 01 _H - 78 _H (1 - 120)	4101 _H - 4178 _H (Sta. No. 1 - 120)
Switch 3	Specify 0000 _H .	0000 _H (fixed)
Switch 4	Set whether there are sub-master station parameters according to the program. If you specify that there are no parameters, the station will operate with the parameters set with the master station.* ¹ If you specify that there are parameters, the station will operate with the parameters set with the program. - 0000 _H : No parameter - 0004 _H : parameter	0000 _H , 0004 _H
Switch 5	Specify 0000 _H .	0000 _H (fixed)

*1: One data link must be established with the master station. The sub-master station will not operate until a data link is established between it and the master station.

- Setting the local station parameters

Item	Content	Setting range
Switch 1	Set the network number.  Network No. : 01 _H - EF _H (1 - 239)	0001 _H - 00EF _H
Switch 2	Set the station number.  Station No. : 01 _H - 78 _H (1 - 120)	3101 _H - 3178 _H (Sta. No. 1 - 120)
Switch 3	Specify 0000 _H .	0000 _H (fixed)
Switch 4		
Switch 5		

Programming

To write the CC-Link IE Field Network module parameters to the buffer memory, you have to create a MELSECWinCPU module user program.

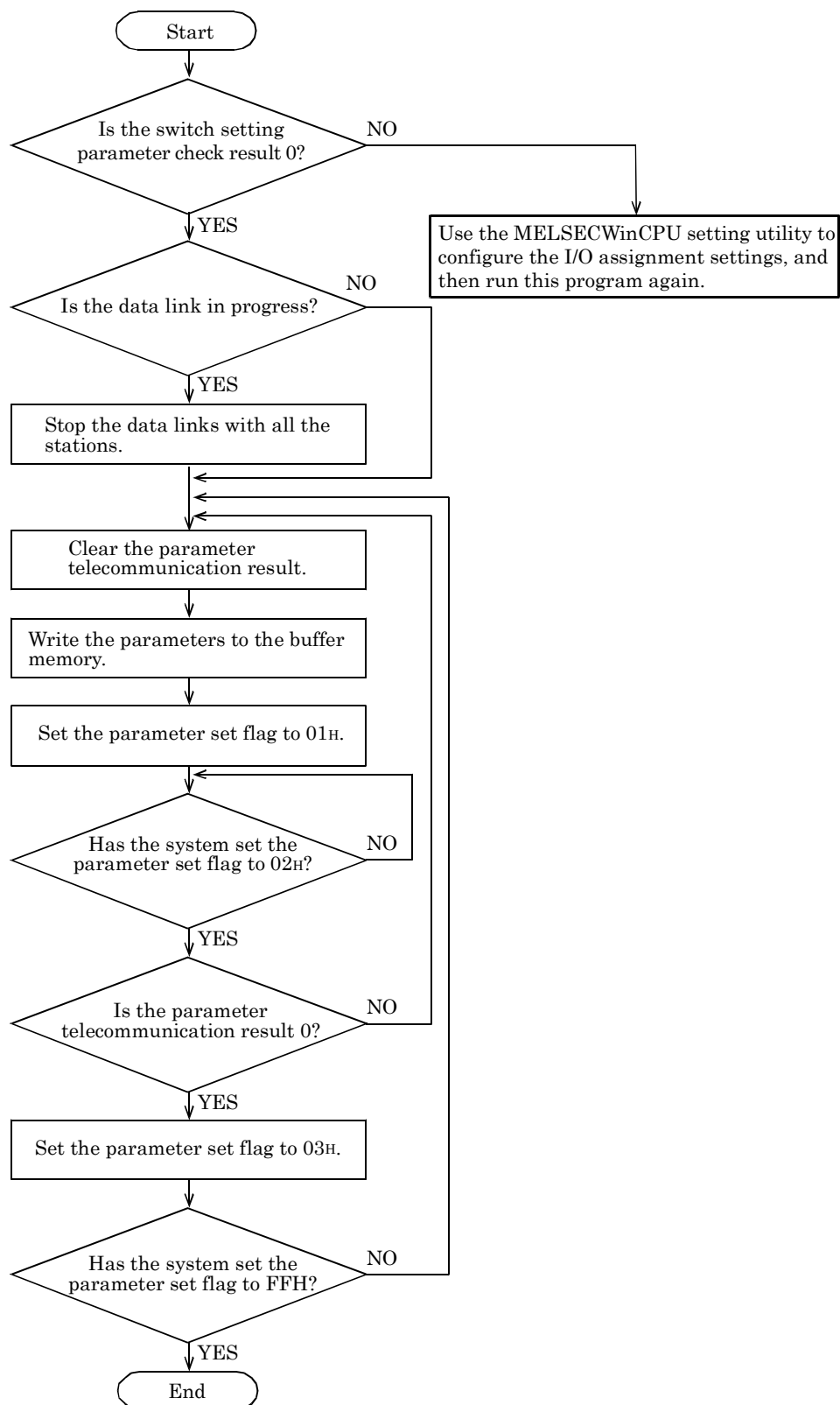
Point
A sample program for setting parameters and performing data telecommunication is included on the CD-ROM. For details on the sample program, refer to the "MELSECWinCPU Module Q-Bus Interface Driver User's Manual (Utility Operation, Programming)".

(a) Notes

- Before you use the user program to set the parameters, use the MELSECWinCPU setting utility to configure the I/O assignment and intelligent function module switch settings.
- Automatic refresh is not performed between the MELSECWinCPU module and the CC-Link IE Field Network module. Use the buffer memory of the CC-Link IE Field Network module to perform data telecommunication.
- When using a CC-Link IE Field Network module in the MELSECWinCPU module, data telecommunication with each station cannot be performed with transient transmission. Use the buffer memory of the CC-Link IE Field Network module to perform data telecommunication with other stations, and use cyclic transmission to do so.
- The MELSECWinCPU module cannot directly access the buffer memory of the intelligent function module under the control of the CC-Link IE Field Network Head module.
- Cyclic transmission can be used to read data from or write data to the buffer memory that has been set to automatic refresh with the head module.

(b) Processing necessary to set parameters with a user program

Use the following flowchart as a guide when creating user programs.



Buffer memory

This section explains the buffer memory that is used to set parameters when a MELSECWinCPU module is used with a CC-Link IE Field Network module.

O: Possible,-: Impossible

Address (HEX)	Name	Enable station		Initial value	Reads/ writes applicability	Referring paragraph	
		Master station	Local station				
31740 (7BFC _H)	Parameter set flag	O	O	0	available	This section (c)	
31741 (7BFD _H)	Switch setting parameter check result	O	O	0	available	This section (d)	
31742 (7BFE _H)	Parameter telecommunication result	O	O	0	available	This section (e)	
31743 (7BFF _H)	Setting flag	O	O	0	available	This section (f)	
31744 (7C00 _H)	Application parameters	Total number of slave stations	O	-	0	available	This section (g)
31745 - 71757 (7C01 _H - 7C0D _H)		System Area					-
31758 - 31765 (7C0E _H - 7C15 _H)		Reserved station information	O	-	0	available	This section (h)
31766 - 31773 (7C16 _H - 7C1D _H)		Error invalid station information	O	-	0	available	This section (i)
31774 (7C1E _H)		Slave station setting information	O	-	0	available	This section (j)
31775 (7C1F _H)	RX/RY offset	O	-				
31776 (7C20 _H)	RX/RY size	O	-				
31777 (7C21 _H)	RWw/RWr offset	O	-				
31778 (7C22 _H)	RWw/RWr size	O	-				
31779 - 32378 (7C23 _H - 7E7A _H)	Network configuration setting data (for modules 2 to 121)	Network configuration setting data (the same as the data for unit 1)	O	-	0	available	This section (k)
32379 - 32380 (7E7B _H - 7E7C _H)	IP Address		O	-	0	available	This section (l)

(a) Parameters that cannot be used in the MELSECWinCPU module

The parameters which cannot be used in the MELSECWinCPU module and its operations are shown below.

- Parameters that cannot be used on master and sub-master stations

Item		Operation
Network Setting	Mode	Online operations are performed (in standard mode).
Network configuration settings	Device name	Operations are performed without device names and comments.
	Comment	
	Link scan mode setting	Operations are performed asynchronously.
	Block data assurance per station	Operations are performed with no block data assurance per station.*1
Network operation setting	Parameter name	Operations are performed without parameter names.
Refresh parameters		Operations are performed without refresh parameters. (Link refresh operations cannot be performed.)
Interrupt setting		Operations are performed without the interrupt setting. (Interrupts cannot be performed.)
Interlink transmission parameter		Operations are performed without the interlink transmission parameter. (Interlink transmission operations cannot be performed.)
Routing parameter		Operations are performed without the routing parameter. Transient transmission operations that require the routing parameter cannot be performed. For details on whether the routing parameter is required, refer to the "MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual".

*1: If the network configuration contains modules that do not support "Block data assurance per station", the functions of those modules cannot be guaranteed.

Point
<p>When using a CC-Link IE Field Network module under the control of the MELSECWinCPU module as a master or sub-master station, use the above parameter settings to check that there are no problems with the operations of the other modules contained in the network configuration.</p> <p>To change the above parameters, set a CC-Link IE Field Network module under the control of a universal model QCPU as the master or sub-master station, and then set the parameters from GX Works2.</p>

- Parameters that cannot be used on local stations

Item		Operation
Network Setting	Total number of slave stations	Operations are performed with the master station setting.
	Mode	Online operations are performed (in standard mode).
Network configuration settings	Sta. No.	Operations are performed with the master station setting.
	Station type	
	RX/RX setting	
	RWw/RWr setting	
	Reserved / Error invalid station information	
	Device name	Operations are performed without device names and comments.
	Comment	Operations are performed asynchronously. *1, *2
	Link scan mode setting	Operations are performed with the master station setting.
	Block data assurance per station	Operations are performed with no block data assurance per station. *1
Network operation setting	Parameter name	Operations are performed without parameter names.
		Operations are performed without refresh parameters.
Refresh parameters	Operations are performed without refresh parameters. (Link refresh operations cannot be performed.)	
Interrupt setting	Operations are performed without the interrupt setting. (Interrupts cannot be performed.)	
Interlink transmission parameter	Operations are performed without the interlink transmission parameter. (Interlink transmission operations cannot be performed.)	
Routing parameter	Operations are performed without the routing parameter. Transient transmission operations that require the routing parameter cannot be performed. For details on whether the routing parameter is required, refer to the "MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual".	

*1: Regardless of the master station settings, the operations will be performed as shown above.

*2: If the master station is set to provide "Block data assurance per station", you cannot perform data telecommunication using the buffer memory of the CC-Link IE Field Network module.

Point
<ul style="list-style-type: none"> - Sure to set the above parameter in master station. - When using a CC-Link IE Field Network module under the control of the MELSECWinCPU module as a local station, the operations of the following may differ from the operations set from the master station. <ul style="list-style-type: none"> - Link scan mode setting - Block data assurance per station <p>To change the above parameters, set a CC-Link IE Field Network module under the control of a universal model QCPU as a local station, and then set the parameters from GX Works2.</p> - If the master station is set to provide "Block data assurance per station", you cannot perform data telecommunication using the buffer memory of the CC-Link IE Field Network module. To perform data telecommunication, check whether the network configuration contains modules that do not support "Block data assurance per station", and then set the master station to not provide "Block data assurance per station".

(b) Notes

- When network configuration setting data in which the total number of slave stations is exceeded is set
Network configuration setting data in which the total number of slave stations is exceeded is ignored.
Only network configuration setting data in which the number of slave stations is less than or equal to the total number of slave stations is valid.
- Station numbers that can be specified for the reserved station information and the error invalid station information
For the reserved station information and the error invalid station information, station numbers outside of the ranges specified by the total number of slave stations and by the network configuration setting data are ignored.
Only station numbers within the ranges specified by the total number of slave stations and by the network configuration setting data are valid.
- Parameter error
If there are parameter errors, use the following procedure to check the error codes stored in the buffer memory and in the link special register (SW), and then fix the error.
 1. Check the error code (D824H or D825H) of the parameter telecommunication result (buffer memory address: 31742 [7BFEH]).
 2. Check the error code of the parameter setting status (SW004C), and then fix the error.

For details on error codes, refer to the "MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual".

(c) Parameter set flag (Buffer memory address: 31740 (7BFC_H))

This indicates a parameter set completion or a cyclic activation request.

What's more, this stores the above indication result.

- 00_H: Initial or idle state (stored by the system)
- 01_H: Parameter set completion (stored by the user)
- 02_H: Normal parameter telecommunication completion (stored by the system)
- 03_H: Cyclic activation request in progress (stored by the user)
- FE_H: Abnormal parameter telecommunication completion (stored by the system)
- FF_H: Cyclic activation request completion (stored by the system)

(d) This stores the switch setting parameter check result. (Buffer memory address: 31741 (7BFD_H))

This stores the switch setting parameter check result.

- 0: Normal
- 1 - : Abnormal (Error code)

(e) Parameter telecommunication result (Buffer memory address: 31742 (7BFEH))

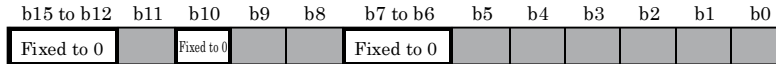
This stores the result of parameter telecommunication between the MELSECWinCPU module and the CC-Link IE Field Network module.

0: Normal

1 - : Abnormal (Error code)

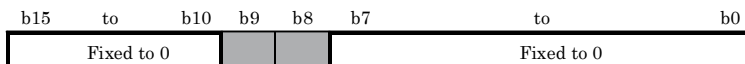
(f) Setting flag (Buffer memory address: 31743 (7BFFH))

- Master and sub-master stations



Bit	Item	Setting range								
b0	Network configuration setting data valid/invalid	0: Invalid (Operations are performed with the default values.) 1: Valid								
b1	Reserved station information data valid/invalid									
b2	Error invalid station information data valid/invalid									
b3	Sub-master function valid/invalid									
b4 - b5	IP packet relay function valid/invalid	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">b5</td> <td style="text-align: center;">b4</td> </tr> <tr> <td style="text-align: center;">Fixed to 0</td> <td style="text-align: center;"> </td> </tr> <tr> <td colspan="2" style="text-align: center;"> </td> </tr> <tr> <td colspan="2" style="text-align: center;">0: Invalid 1: Valid</td> </tr> </table>	b5	b4	Fixed to 0				0: Invalid 1: Valid	
b5	b4									
Fixed to 0										
0: Invalid 1: Valid										
b8	Data link abnormal station setting	0: Hold 1: Clear								
b9	Setting for output when CPU stopped	0: Clear 1: Hold								
b11	Loopback function setting	0: Do not use 1: Use								

- Local stations



Bit	Item	Setting range
b8	Data link abnormal station setting	0: Hold 1: Clear
b9	Setting for output when CPU stopped	0: Clear 1: Hold

(g) Total number of slave stations (Buffer memory address: 31744 (7C00H)) (This setting is only available on master and sub-master stations.)

- When the sub-master function is not used

Set this to the number of connected slave stations. (Setting range: 1 - 120)

- When the sub-master function is used

Set this to the number of connected slave stations. If the master station area is used, set this to the number of connected slave stations + 1. (Setting range: 2 - 121)

(h) Reserved station information (Buffer memory address: 31758 - 31765 (7C0EH - 7C15H)) (This setting is only available on master and sub-master stations.)

When the setting flag (7BFFH) has been used to set reserved station information data valid/invalid (b1) to valid, set the slave station to reserve.

0: No information present

1: Information present

	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
31758(7C0EH)	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
31759(7C0FH)	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
31760(7C10H)	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33
31761(7C11H)	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49
31762(7C12H)	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65
31763(7C13H)	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
31764(7C14H)	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97
31765(7C15H)	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113

The numbers in the table indicate station numbers.

(i) Error invalid station information (Buffer memory address: 31766 - 31773 (7C16H - 7C1DH)) (This setting is only available on master and sub-master stations.)

When the setting flag (7BFFH) has been used to set error invalid station information data valid/invalid (b2) to valid, set the slave station on which to make errors invalid.

0: No information present

1: Information present

	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
31766(7C16H)	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
31767(7C17H)	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
31768(7C18H)	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33
31769(7C19H)	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49
31770(7C1AH)	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65
31771(7C1BH)	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
31772(7C1CH)	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97
31773(7C1DH)	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113

The numbers in the table indicate station numbers.

(j) Network configuration setting data (For module 1)(Buffer memory address: 31774 - 31778 (7C1EH - 7C22H))(This is a required setting on the master station.)

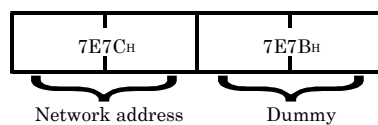
Address (DEC(HEX))	Name	Content	Setting range
31774 (7C1EH)	Slave station setting information	Set the station classification and number. b15 to b12 b11 to b8 b7 to b0 Station type: 0: Remote I/O station, 1: Remote device station, 2: Intelligent device station, 3: Local station Sta. No.: 1 - 120: Sta. No.	Refer to the information written to the left.
31775 (7C1FH)	RX/Ry offset	Specify the leading RX/Ry number. (The unit is 16 points.)	0 - 3FF0H
31776 (7C20H)	RX/Ry size	Specify the number of RX/Ry points. (The unit is 16 points.)	0 - 2048
31777 (7C21H)	RWw/RWr offset	Specify the leading RWw/RWr number. (The unit is 4 points.)	0 - 1FFCH
31778 (7C22H)	RWw/RWr size	Specify the number of RWw/RWr points. (The unit is 4 points.)	0 - 1024

(k) Network configuration setting data (For modules 2 to 120)(Buffer memory address: 31779 - 32378 (7C23H - 7E7AH))(This is a required setting on the master station.)

These store the network configuration setting data for modules 2 to 121 (modules 2 to 120 when the sub-master function is not used). The data is stored in the same order as shown above for the network configuration setting data for module 1.

(l) IP address (Buffer memory address: 32379 - 32380 (7E7BH - 7E7CH))

When setting the IP address in this area, use the b4 and b5 setting flags (buffer memory address: 31743 [7BFFH]) to enable the IP packet relay function (refer to part [f] in this section).



Debug

When a MELSECWinCPU module is used with a CC-Link IE Field Network module, debugging cannot be performed with the MELSECWinCPU module connected to GX Works2.

To perform debugging, check the lit status of the LEDs of and the error codes of the MELSECWinCPU module and CC-Link IE Field Network module.

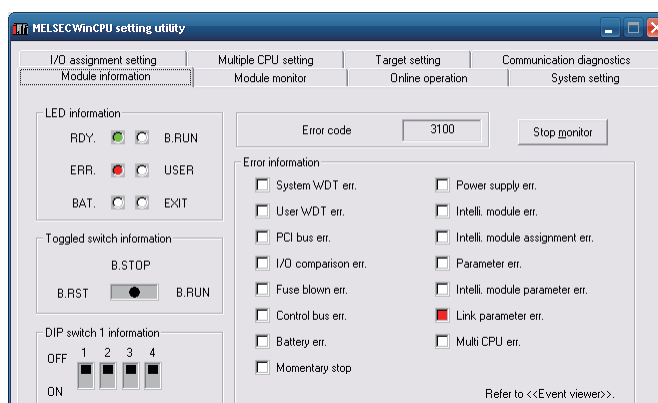
(a) Verifying LED

- For details on the MELSECWinCPU module LEDs, refer to "Chapter 5, Each Component Function".
- For details on the CC-Link IE Field Network module LEDs, refer to the "MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual". However, note that GX Works2 cannot be used to perform debugging.

(b) Verifying Error code

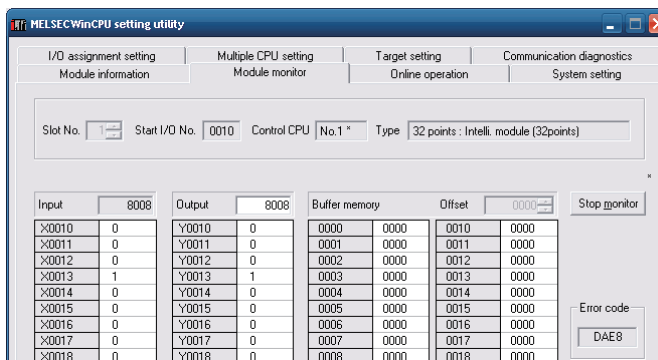
MELSECWinCPU module error codes

- "Error code" on the "Module information" tab of the MELSECWinCPU setting utility.



CC-Link IE Field Network module error codes

- "Error code" on the "Module monitor" tab of the MELSECWinCPU setting utility.



Error code

The error codes when a MELSECWinCPU module is used with a CC-Link IE Field Network module are shown below.

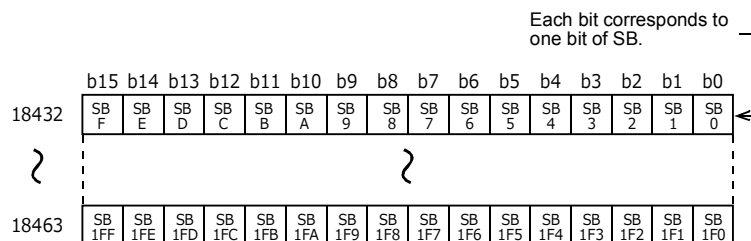
Error code	Error description	Corrective action
D000H - DFFFH	Errors that are detected by the CC-Link IE Field Network system	For details, refer to the "MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual".
DAE8H	Switch setting information abnormal	Review the intelligent function module switch settings, and then rewrite the settings to the CPU module. If the error still persists even after following the troubleshooting listed above, Please consult your local Mitsubishi representative.

Checking link special relays and registers

Check the link special relays and registers of the CC-Link IE Field Network module from buffer memory.

Address(HEX)	Name
18432 - 18463 (7E7BH - 7E7CH)	Link special relays (SB)
32379 - 32380 (7E7BH - 7E7CH)	Link special registers (SW)

(a) Link special relays (SB) (Buffer memory address: 18432 - 18463 (4800H - 481FH))



(b) Link special registers (SW) (Buffer memory address: 18464 - 18975 (4820H - 4A1FH))

Address	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
18464	SW0															
18465	SW1															
18975	SW1FF															

Point

For details on the link special relays (SB) and link special registers (SW), refer to the "MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual".

REVISIONS

*The manual number is given on the bottom left of the back cover.

Print date	*Manual number	Revision
December 2011	SH(NA)-081055ENG-A	First edition
February 2013	SH(NA)-081055ENG-B	<u>Partial correction</u> Packing List, Hard Disk Boot Priority, System Configuration, Multiple CPU Configuration, BIOS Error, Appendix 2. Battery, <u>Addition</u> Limitations, When a CC-Link IE Field Network Module is used in the MELSECWinCPU Module,
August 2013	SH(NA)-081055ENG-C	<u>Partial correction</u> Control Switch, Multiple CPU Configuration, Chapter 7 Reset Specifications, Reset Procedure of a MELSECWinCPU module and All the Modules on a Bus, Buffer Memory <u>Addition</u> Reset Specification Details with the Single-CPU Configuration, Reset Specification Details with the Multiple CPU Configuration (MELSECWinCPU Module No. 2 - 4)
December 2015	SH(NA)-081055ENG-D	<u>Addition</u> Uninstalling the Module, Precautions regarding the Heat-conductive Sheet

Japanese manual version SH-081044-E

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WARRANTY

Please confirm the following product warranty details before using this product.

1. Gratis Warranty Term and Gratis Warranty Range

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi occurs during use of the product within the gratis warranty term, the product shall be repaired at no cost via the sales representative or Mitsubishi Service Company.

However, if repairs are required onsite at domestic or overseas location, expenses to send an engineer will be solely at the customer's discretion. Mitsubishi shall not be held responsible for any re-commissioning, maintenance, or testing on-site that involves replacement of the failed module.

[Gratis Warranty Term]

The gratis warranty term of the product shall be for one year after the date of purchase or delivery to a designated place.

Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be eighteen (18) months. The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.

[Gratis Warranty Range]

- (1) The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.
- (2) Even within the gratis warranty term, repairs shall be charged for in the following cases.
 1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
 2. Failure caused by unapproved modifications, etc., to the product by the user.
 3. When the Mitsubishi product is assembled into a user's device, failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
 4. Failure that could have been avoided if consumable parts (battery, backlight, fuse, etc.) designated in the instruction manual had been correctly serviced or replaced.
 5. Failure caused by external irresistible forces such as fires or abnormal voltages, and failure caused by force majeure such as earthquakes, lightning, wind and water damage.
 6. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
 7. Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

2. Onerous repair term after discontinuation of production

(1) Mitsubishi shall accept onerous product repairs for six (6) years after production of the product is discontinued.

Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.

(2) Product supply (including repair parts) is not available after production is discontinued.

3. Overseas service

Overseas, repairs shall be accepted by Mitsubishi's local overseas FA Center. Note that the repair conditions at each FA Center may differ.

4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation to:

- (1) Damages caused by any cause found not to be the responsibility of Mitsubishi.
- (2) Loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products.
- (3) Special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products.
- (4) Replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

5. Changes in product specifications

The specifications given in the catalogs, manuals or technical documents are subject to change without prior notice.

6. After service

When you request the investigation of failure, make sure that we may be unable to investigate some parts of the product.

The major difference of after service from MELSEC-Q series, etc.
(1) The warranty period is 1 year after we delivered it or 18 months after the production, whichever come first.
(2) The repairable period after the end of mass production is 6 years after the end.
(3) The support may take long times according to the content and the timing of your requests.

That's all

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SH(NA)-081055ENG-D(1512)KWIX

MODEL: Q10WCPU-W1-U-HK-E

MODEL CODE: 13JZ68

MITSUBISHI ELECTRIC CORPORATION

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