VM15UA

User's Guide

DRAFT

Revision 1.0

September , 2003

ATIO SYS, INC.

Copyright Notice

Trademarks

Pentium® is a registered trademark of Intel Corporation.

The following are trademarks or registered trademarks of their respective companies: IBM, Intel, AMD, Cyrix, Award, AMI, Microsoft, Windows, Windows NT, Novell, SCO, PC/104, PICMG, ALI, UMC, SMC, Winbond. Products mentioned in this manual are mentioned for identification purposes only. All names of products or services appearing in this manual are the trademarks or registered trademarks of their respective organizations and companies.

DRAFT

Liability

This User Guide is composed to assist system manufacturers and end users in setting the Single Board Computer (SBC). ATIO provides this guide "AS IS" without warranty of any kind, either express or implied, including but not limited to the implied warranties or conditions of merchantability or fitness for a particular purpose. In no events shall ATIO, its directors, officers, employees or agents be liable for any indirect, special, incidental or consequential damages (including damages for loss of profits, loss of business, loss of use or data, interruption of business and the like), even if ATIO has been advised of the possibility of such damages arising from any defects or errors in this manual or product.

Specifications and information contained in this manual are furnished for

informational use only, and are subject to change at any time without notice, and should not be construed as a commitment by ATIO. ATIO reserves the right to make revisions to this publication without the obligation to notify any persons or entities of any changes. ATIO assumes no responsibility or liability for any errors or inaccuracies that may appear in this manual, including the products and software described in it.

Others

Please inform your dealer immediately should there be any incorrect, missing or damaged parts.

Please retain the carton, including the original packing materials. Repack the product in the original way in case there is a need to return it to the manufacturer for repairing.

Products warranty or service will not be extended if: (1) the product is repaired, modified or altered, unless such repair, modification or alternation is authorized in writing by ATIO; or (2) the serial number of the product is defaced or missing.

Safety Precautions

- Follow the messages hereinafter to protect your systems from damage on all occasion.
- Touch a grounded metal object to discharge the static electricity in your body (or ideally, wear a grounded wrist strop).
- Stay safe from the electric shock. Don't touch any components of this card when the card is on. Always switch off power when the system is not in use.
- Disconnect power when changing any hardware device; For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

Product Name:	**VM15UA**
Document Version:	**Version 1.0**
Release Date:	**December, 2003**
Printed in Taiwan	

ATIO System, Inc.

Sales:

ATIO System. Inc.(Taiwan Headquarter):
Phone: 886-2-32343089
Fax: 886-2-22269623
8F-10, No. 351, Chung Shan Rd., Sec. 2, Chung Ho City, Taipei, Taiwan 235
atio@atiosys.com
technical@atiosys.com
sales@atiosys.com

ATIO System, Inc.(North America Branch):
Phone: 1-818-407-4965
Fax: 1-818-407-4966
21540 PRAIRIE STREET, UNITA, CHATSWORTH, CA 91311 USA
charlesc@goformosa.com

NEOTEK SYSTEM.Inc (China Branch - Shenzhen Office):
Phone: 86-755-82949074
Fax: 86-755-82949132
Shenzhen Futian fortune Xinwen Road 59 Shenmao trading centre 11G China 518034
customer@atio.com.cn

NEOTEK SYSTEM, Inc (China Branch - Shanghai Office):
Phone: 86-21-64152302
Fax: 86-21-64455796
522 Electric Power Bldg. 430 Xujiahui Lu, Shanghai China 200025
customer@atio.com.cn

NEOTEK SYSTEM.Inc (China Branch - Beijing Office):
Phone: 86-10-62985337
Fax: 86-10-62985292
9/F, Block A, XinxiluTower, No.26, Xinxilu Street Shangdi, Haidian, Beijing, China 100085
customer@atio.com.cn

NEOTEK SYSTEM.Inc (China Branch - Chengdu Office):
Phone: 86-28-85234103
Fax: 86-28-86310358
Rm 701,Block B, Nan Yi Duan 20,YiHuan Road, ChengDu, SiChuan,China 610041
customer@atio.com.cn

Table of Contents

FEDERAL COMMUNICATIONS COMMISSION

INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

--Reorient or relocate the receiving antenna.

--Increase the separation between the equipment and receiver.

--Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

--Consult the dealer or an experienced radio/TV technician for help.

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void

the user's authority to operate the equipment.

FCC RF Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

1. SPECIFICATION

1.1 Board Specification

Processor	:	VIA C3 1G Nehemiah or Eden serial CPU
System Memory / RAM	:	One SODIMM socket up to 512 MB
Display Type	:	TFT LCD 15.1" and Max resolution 1024x768
VGA connector	:	One DB-15 VGA connector
Wireless Lan	:	Built-in Wireless Lan
Card Reader	:	Built-in Card Reader
Ethernet Connectors	:	Two RJ-45 connectors, supports 10/100 Base-T interface, wake on LAN, Boot ROM and PXE functions
PC-104+ Interface	:	Built-in PC-104+ interface
HDD	:	IDE HDD Interface (2.5" HDD bay)
Compact Flash	:	Built-in Compact Flash Type I and II
SRAM	:	Built-in 4MB SRAM
Touch sensor		Built-in 3M dynapro Touch sensor (8-wires resistor type)
Serial Port	:	Four COM ports with ESD protact, COM1 RS-232 D-sub 9pin Male connector, COM2 RS-232 D-sub 10pin Male connector; pin 10 as +5V COM3 RS-232/422/485(Auto-sensing) D-sub 25pin Male connector, COM4 RS-232 2x6,2.54mm pin header and (optional) for Salt Touch Senser controller controlled by switch.
Parallel Port	:	One multi-mode parallel port (SPP/EPP/ECP) DB-25 connector
Keyboard/Mouse connector	:	Tow 6-pin mini-DIM PS/2 keyboard and mouse connectors
Universal Serial Bus	:	Supports two A-type USB port connectors
Power Supply	:	150W power supply
Operating Temperature	:	0°C ~ 45°C
Storage Temperature	:	-20°C ~ 70°C
Humidity	:	5% ~ 80% RH, non-condensing
Dimensions	:	376.8*310.5 mm +/- 0.5mm
Net weight	:	? g (? pounds)
EMI/EMS	:	Meet CE and FCC class A regulation, test service not include in design and layout

		charge *Meet the class B standard*
Other function	:	Support USB device boot up(FDD,HDD,CD-ROM) Support Dual VGA
Host bridge	:	VIA VT8605 [ProSavage PM133]
PCI bridge	:	VIA VT8605 [PM133 AGP]
ISA bridge	:	VIA VT82C686 [Apollo Super South] (rev 40)
IDE interface	:	VIA VT82C586B PIPC Bus Master IDE (rev 06)
USB controller	:	VIA USB (rev 1a)
USB controller	:	VIA USB (rev 1a)
Bridge	:	VIA VT82C686 [Apollo Super ACPI] (rev 40)
Multimedia audio controller	:	VIA VT82C686 AC97 Audio Controller (rev 50) Module: via82cxxx_audio
Ethernet controller	:	Intel 82559ER (rev 09) Module: eepro100
Ethernet controller	:	Realtek RTL-8139/8139C/8139 C+ (rev 10) Module: 8139too
VGA compatible controller	:	S3 VT8603 [ProSavage PN133] AGP4X VGA Controller (Twister) (rev 02) Driver: Savage VendorName: S3 Savage4 (generic) Resolution: 1024*768 (16bit)
Wireless LAN	:	VendorName: Intersil Module: prism2_usb
Serial Port	:	COM1: ttyS0 at 0x3f8 (irq=4) is a 16550A COM2: ttyS1 at 0x2f8 (irq=3) is a 16550A COM3: ttyS2 at 0x3e8 (irq=10) is a 16550A COM4: ttyS3 at 0x2e8 (irq=11) is a 16550A We should set IRQ for COM3 and COM4 under Linux.
TouchScreen	:	VendorName: Penmount Driver: penmount Device: /dev/ttyS3 (where ttyS3 = COM4 which is for Salt Touch Senser controller.) The installation guide for penmount driver
BIOS setup	:	1. Panel Type as 07 (1024x768 resolution

mode)
2. Setting <Load fail-safe default> or <Load Optimized default> in the BIOS menu to load the bios default value.

1.2 System Specification

CPU	:	VIA C3 1G Nehemiah or Eden serial CPU
Disk Drive Housing	:	Room for one 2.5" HDD
Dimension	:	376.8*310.5 mm
Weight	:	~10kg
Memory	:	Supports up to 512MB SODIMM(144pin)
FDD	:	Supports Notebook type FDD connector
Network(Lan)	:	10/100 Base-T Ethernet Interface
Smart Card Reader	:	UIC HCR330 smart card reader
Wireless	:	Supports IEEE802.11b wireless solution
Compact Flash	:	Built-in Compact Flash Type I and II
SRAM	:	Built-in 512KB SRAM
Touch sensor	:	Built-in 3M dynapro Touch sensor
IO ports	:	- 4 serial ports: RS-232 x3, RS-232/422/485x1 - 1 parallel port, 2 USB ports - 1 PS2 keyboard and mouse interface - Mic-in(optional), Speaker-out

Power Supply

Output Rating	:	90W max
Input voltage	:	100~240Vac, auto switch @ 50~60Hz
Output voltage	:	+5V@ 4A; +12V@2A
Battery	:	Supports two hours when system is fully running.

Environment Spec.

Operating Temperature	:	0°C ~ 45°C(32~113°F)
Storage Temperature	:	-20°C ~ 70°C
Relative Humidity	:	10% ~ 90% RH, non-condensing
EMC		Meet CE and FCC class B
Safety	:	UL, CE

1.3 LCD Specification

1.3.1 OVERVIEW

M150X4-L06 is a 15.0" TFT Liquid Crystal Display module with 2 CCFL Backlight units and 20 pins LVDS interface. This module supports 1024 x 768 XGA mode and can display 16.2M colors. The optimum viewing angle is at 6 o'clock direction. The inverter module for Backlight is not built in.

1.3.2 FEATURES

-XGA (1024 x 768 pixels) resolution
- DE(Data Enable) only mode
- LVDS Interface with 1pixel/clock

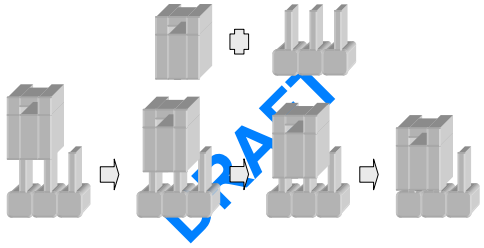
1.3.3 GENERAL SPECIFICATIONS

Item		Min.	Typ.	Max.	Unit
Module Size	Horizontal(H)	320.5	321.0	321.5	mm
	Vertical(V)	244.9	245.4	245.9	mm
	Depth(D)	-	9.7	10	mm
Weight		-	-	930	g
Item		Specification			Unit
Active Area		304.128(H) x 228.096(V) (15.0" diagonal)			mm
Bezel Opening Area		307.5(H) x 231.4(V)			mm
Driver Element		a-Si TFT active matrix			-
Pixel Number		1024 x R.G.B. x 768			pixel
Pixel Pitch		0.297(H) x 0.297(W)			mm
Pixel Arrangement		RGB vertical stripe			-
Display Colors		16,194,277			color
Transmissive Mode		Normally white			-

2. HARDWARE CONFIGURATION

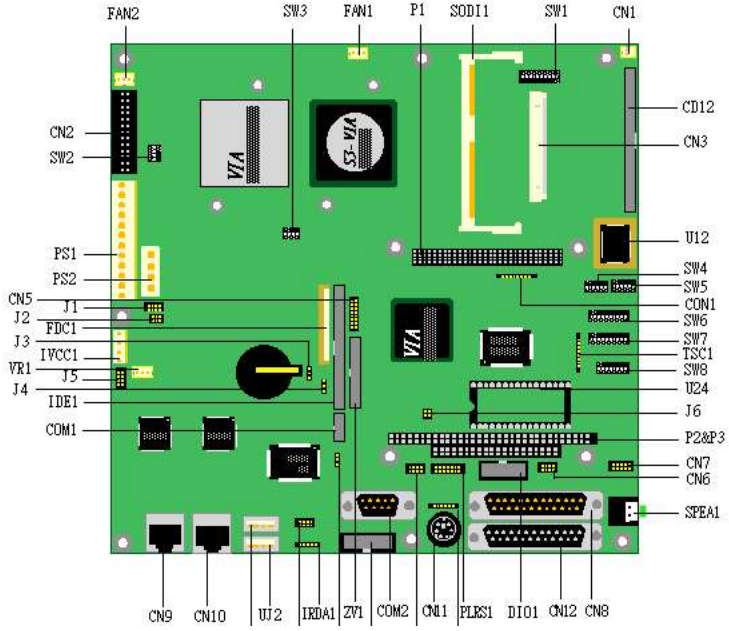
2.1 How to Set the Jumper

In order to select the operation modes of your system, configure and set the jumpers on the your Embedded SBC to match the need of your application. To set a jumper, a black plastic cap containing metal contacts is placed over the jumper pins as designated by the required configuration as listed in this section. A jumper is said to be " on " or " 1-2 " when the black cap has been placed on two of its pins, as show in the figure below:

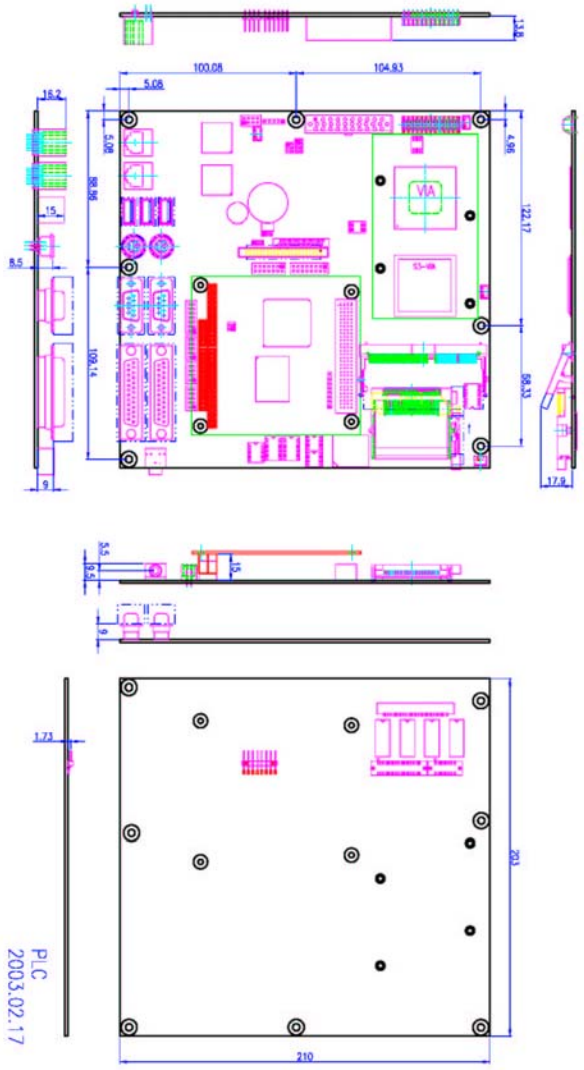


A pair of needle-nose pliers is recommended when working with jumpers. If you have any doubts about the best hardware configuration for your application, contact your local sales representative before you make any changes. In general, you simply need a standard cable to make most connections.

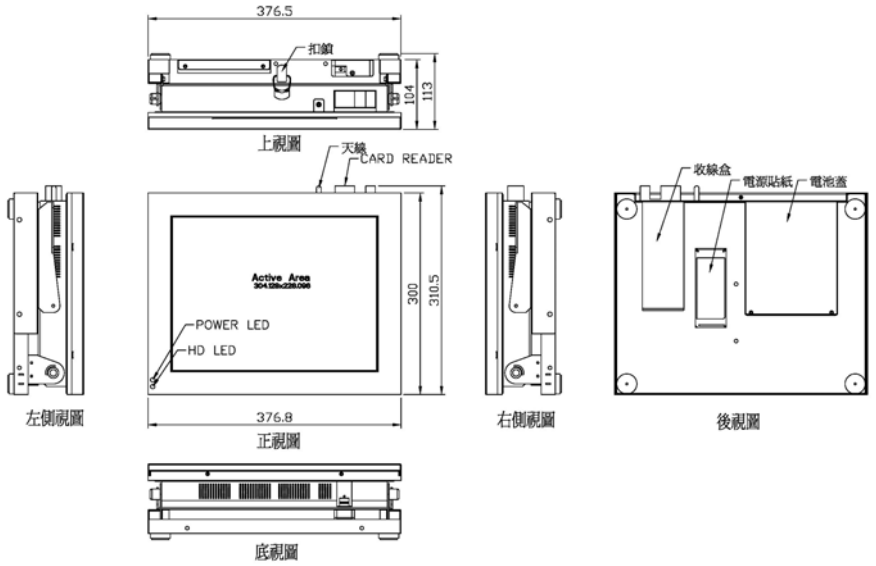
2.2 Jumper Setting



2.3 Board Dimension



2.4 System Dimension



2.5 Jumper, Connector & Socket List

Jumper:

COMS Reset Connector..... JP1

Connector:

System FAN Connector..... CN1
System FAN Connector..... CN2
COM2 Connector CN3
422 / 485 Connector..... CN4
IDE LED Connector CN5
External Power Button Connector (For ATX Power)CN6
Reset Button Connector..... CN7
168-PIN SDRAM DIMM Connector.....CN8
CRT VGA Connector CN9
COM1 Connector CN10
IR Connector CN11
Digital I/O Connector CN12
IDE1 44pin 2.0mm Connector CN13
IDE1 44pin 2.0mm Connector CN14
Floppy Disk 34pin 2.00mm Connector CN15
Keyboard / Mouse Connector..... CN17
USB Connector..... CN18
USB Connector..... CN19
Power LED Connector..... CN20
LAN LED Connector..... CN21

Switch:

Switch For COM2(RS232/422/485).....SW1

2.6 System configuration

2.6.1 Hardware

- CPU Board part number: C708-VMB10-100
- CPU: using VIA C3 1G Nehemiah (133x7.5), but the CPU front side bus set as 100MHz by 7.5 ratios.
- 2.5" HDD (Model#: IC25N020ATCS04-0/20G)
- LCD: LM151X4-(A3)
- Inverter: QF61V4
- Touch sensor: 3M MicroTouch 15.0" Model#: RES15.0-PL8
- CPU cooler: AVC C4010T12H DC12V 0.1A
- SODIMM: V-DATA 256MB PC-133 RC56S1617TA0-13AC
- Compact Flash: PQI 128MB
- Power supply: FSP150-50PL1
- Wireless: ActionTec
- SRAM is modified from 2MB to 512KB.

2.6.2 Software

- Linux Ret Hat 8.0/Kernel version: 2.4.18-14
- Test items
  a. X11scaling 30 minutes.
  b. True Image(Backup and Restore), using on-board 82559ER LAN.
  c. Wireless LAN test.
  d. Memory test: 2hrs
  e. CPU test: X11perf 4hrs
  f. HDD test: Bonniett 2hrs