Product Support Bulletin

Subject: Equity and Apex Series Compatibility with the System OmniBridge
Controller and BridgeFiler External Floppy Drives

The purpose of this bulletin is to provide the results of compatibility testing conducted by the Computer Product Support Center with the Sysgen OmniBridge controller and Bridge - Filer external floppy disk drives.

Model	Comments
Equity I	The Equity I was found compatible with the OmniBridge controller. It was able to support one or two external disk drives (daisychained) together. The external drives could be used as high density (1.2M and 1.44M) or normal (360K and 720K) disk drives.
Equity II	The Equity II was found to be totally incompatible with the OmniBridge controller.
Equity III	The Equity III was found compatible with the OmniBridge controller. It was able to support one or two external disk drives (daisychained) together. The external drives could be used as high density (1.2M and 1.44M) or normal (360K and 720K) disk drives.
Equity I +	The Equity I + was found compatible with the OmniBridge controller. It was able to support one or two external disk drives (daisychained) together. The external drives could be used as high density (1.2M and 1.44M) or normal (360K and 720K) disk drives.
Equity le	The Equity le was found compatible with the OmniBridge controller. It was able to support only one external floppy drive, unlike the other models tested. The drive could be used as a high density (1.2Mb and 1.44Mb) or normal (360K and 720K) disk drive.

Equity II +   The Equity II + was found compatible with the OmniBridge controller. It was able to support one or two external disk drives (daisychained) together. The external drives could be used as high density (1.2M and 1.44M) or normal (360K and 720K) disk drives.

Equity IIe   The Equity IIe was found compatible with the OmniBridge controller. It was able to support one or two external disk drives (daisychained) together. The external drives could be used as high density (1.2M and 1.44M) or normal (360K and 720K) disk drives.

Equity III +   The Equity III + was found compatible with the OmniBridge controller. It was able to support one or two external disk drives (daisychained) together. The external drives could be used as high density (1.2M and 144M) or normal (360K and 720K) disk drives.

Equity 386SX   The Equity 386SX was found compatible with the OmniBridge controller. It was able to support one or two external disk drives (daisychained) together. The external drives could be used as high density (1.2M and 144M) or normal (360K and 720K) disk drives.

Equity 386/20   The Equity 386/20 was found compatible with the OmniBridge controller. It was able to support one or two external disk drives (daisychained) together. The external drives could be used as high density (1.2M and 1.44M) or normal (360K and 720K) disk drives.

APEX   The Epson APEX was found compatible with the OmniBridge controller. It was able to support one or two external disk drives (daisychained) together. The external drives could be used as high density (1.2M and 1.44M) or normal (360K and 720K) disk drives.

APEX +   The Epson APEX was found compatible with the OmniBridge controller. It was able to support one or two external disk drives (daisychained) together. The external drives could be used as high density (1.2M and 1.44M) or normal (360K and 720K) disk drives.

APEX 100   The Epson APEX 100 was found compatible with the OmniBridge controller.   It was able to support one or two external disk drives (daisychained) together. The external drives could be used as high density (1.2M and 1.44M) or normal (360K and 720K) disk drives.

APEX 200   The Epson APEX 200 was found compatible with the OmniBridge controller.   It was able to support one or two external disk drives (daisychained) together. The external drives could be used as high density (1.2M and 1.44M) or normal (360K and 720K) disk drives.

NOTE: The recommended switch settings for the OmniBridge controller are as follows:

> 1-1 DOWN   2-1 DOWN
> 1-2 DOWN   2-2 DOWN
> 1-3 DOWN   2-3 UP
> 1-4 DOWN   2-4 UP

These settings select NO ADDRESS for the OmniBridge BIOS and allow it to coexist with the internal FDC of the computer in which it is being installed.   This way you do not need to disable the internal FDC or connect any cables from the OmniBridge to internal floppy drives. This was found to be a universal setting for all of the computers listed above as compatible with the OmniBridge controller.

Product Support Bulletin

Subject: Apex 200 Computer - Answers to Common Questions

Q. Where can I obtain help regarding software or hardware questions on the
    APEX 200 computer?

A. PFS First Choice applications software

    Software Publishing Corp. provides the warranty and end - user support for
    the First Choice software.   Please refer to the First Choice User's Guide
    for customer support information.   The telephone number for PFS First
    Choice support is (415) 962 - 9002.

    APEX 200 Hardware and MS - DOS software support

    Epson America Inc. provides technical support for questions regarding the
    MS - DOS (software) and the APEX 200 computer, Apex printer and Apex
    monitors (hardware). Customers can obtain support by calling our Product
    Support Department at (213) 539 - 9955, or by writing to:

                        Epson America, Inc.
                        Product Support Department
                        23610 Telo Ave.
                        Torrance, Ca. 90505

Q. Where can I obtain warranty repair service for my Epson Apex products?

A. Epson America, Inc. has a network of Authorized Epson Customer Care
    Centers located throughout the U.S. If you require service you can call our
    toll free Consumer Information number at (800) 922- 8911 to locate the
    nearest Apex Customer Care Center for service or product upgrades. You
    must provide your proof of purchase receipt for warranty service.

Q. Does the APEX 200 have a serial interface port?

A. Yes, an IBM PC/AT- compatible (9 - pin connector) serial port is standard
    with the APEX 200 and can be used to connect a serial device such as
    a modem, serial mouse or a serial printer.

Q. What kind of printer can I use with the APEX 200?

A. The APEX 200 includes an IBM PC - compatible parallel interface which is used to connect any printer or plotter with a standard parallel interface. An IBM PC- compatible parallel printer cable (not included) is required to connect a printer to the computer.

Epson currently offers outstanding printers in the ActionPrinter line. The T- series printers are 9 - pin printers with near letter quality print.   The T - 1000 is an 80 column printer and the T750 is a 136 column printer. The L- series printers are 24 - pin printers with superb letter quality print.   The L1000 is an 80 column printer and the L750 is a 136 column printer.

Q. What type of hard disk drive does Epson supply with the APEX 200\20 and APEX 200\40 and what is the average disk access time?

A. The Apex 200\20 uses a 5.25", half - height, 20 MB, Seagate ST- 225, MFM hard disk with an average disk access time of 65ms.
The Apex 200\40 uses a 5.25", half - height, 40 MB, CDC 94205 - 51 MFM, hard disk with an average disk access time of 28ms.

Q. Can a higher capacity hard disk drive be installed?

A. Yes, if you install a new hard disk drive, refer to the Drive Type Table in Appendix F of the Users Guide to match the drive type to the number of heads and cylinders.   If you cannot match the drive parameters with the drive type table you can use the next lower cylinder number with the same head number, however, this will not give you the full drive capacity. An alternative method, under MS - DOS, is to use a disk manager software such as SpeedStor or Disk Manager (available from software dealers). This software will allow you to format the full disk capacity for use.

Q. Is the Plus Development Hardcard 20 or Hardcard 40 compatible with the Apex 200?

A. Yes, the Hardcard 20 or Hardcard 40 must be configured in SETUP as not being installed by setting the drive type as none.

Q. What kind of floppy disk drive does the APEX 200 have and what kind of floppy diskettes should I use?

A. The APEX 200 - series computers use a half - height, 5 1/4", 1.2MB floppy disk drive.   You can use both double - sided, double - density, soft - sector, 48 TPI, floppy diskettes for 360KB capacity and double- sided, high - density, soft - sector, 96 TPI floppy diskettes for 1.2MB capacity.   The 360KB diskette boxes are usually marked DSDD or 2S - 2D, Soft - Sector, 48TPI and the 1.2MB diskette boxes are marked DSHD or 2S- HD, 96TPI. New blank diskettes must be formatted using the MS - DOS utilities provided before being used.   You must use the command "FORMAT /4" to format the 360KB double density diskettes.

Q. Is it possible to disable the APEX 200 floppy disk controller?

A. Yes, by changing jumper 2 on the SPF2 board from the A to the B position.

Q. Can I use other types of floppy disk drives with the APEX 200?

A. 5.25", 360KB, half - height floppy disk drives are compatible with the APEX 200 personal computer.   The Epson 3.5", half - height, 720KB floppy drive (Epson Model code A112A- AA) and the Epson 3.5", half height, 1.44MB floppy disk drive (Epson Model code A811151) have been tested with the APEX 200 computer and are compatible (available from Epson Computer Products dealers).   These Epson drives come mounted on a 5.25" frame with a matching front bezel.

Q. How do you disable the parallel port on the APEX 200?

A. To disable the parallel port, jumpers J3 and J4 on the SPF2 board must be set to position BC. To enable the parallel port, set the jumpers to AC.

Q. Can I install a Math- Coprocessor chip and what type do I need?

A. A Math- Coprocessor chip is an option which speeds up the floating point math functions used in many spreadsheet and math - intensive software applications. It can be purchased at electronic parts retailers and computer stores (Epson America Inc. does not supply them).   An Intel (8MHZ) 80287-8 Math- Coprocessor chip, is recommended for use with the APEX 200 computer.   The Math-Coprocessor chip is installed in the socket provided at I.C. location 5C on the APEX 200 system board. The system must be configured for the Math- Coprocessor option in SETUP.

Q. Where can I get application software for the APEX 200 computer?

A. You can use virtually all software programs written for the IBM PC/AT computers.   Make sure the system requirements on the software package match your computer configuration and video adapter type. Software is available through Epson Accessories, Inc. at 1 - 800 - 873- 7766, or at your local software store.

Q. Is the APEX 200 compatible with MS-OS/2?

A. Since OS/2 is much more hardware - specific than MS - DOS, the Epson version of MS - OS/2 is required (available from Epson dealers).
A minimum of 2MB of RAM memory is required to run MS-OS/2.

Q. Will IBM compiled BASIC programs run on the APEX 200?

Most BASIC programs written for the IBM PC- XT will run on the APEX 200. Some IBM and Tandy BASIC programs will not run. This is because they require IBM BASICA which is resident in copyrighted ROMs.   All compatibles use a version of GW - BASIC which is loaded from diskette. Due to differences in the BASIC, some programs will not operate correctly.

Q. Can I use the APEX Monochrome Monitor (Model # AP1040) with other IBM PC - compatible computers?

A. The Apex 12" Monochrome monitor (Model AP - 1040) uses a TTL video signal which is IBM PC - compatible and can be used with other computers that have a monochrome TTL video board. It should not be confused, however, with the earlier Apex composite video monochrome monitor (Model # AP - 1010A) which is not compatible with the APEX 200 video board.

Q. Can I use the Apex color monitor with other IBM PC- compatible computers and what are the specifications?

A. The Apex 13" color monitor is an IBM PC-compatible, 16 color, RGB, dual function monitor which can be set up for either color or green screen mode with a switch on the rear panel.   It has a 640 x 200 (black and white) or 320 x 200 (4 color) graphics dot resolution.   It can display 16 colors in 80 column x 25 row text mode. The dot pitch is .52mm.

Q. What other monitors are compatible with the APEX 200 and is it possible to use a television set?

A. Most IBM PC-compatible RGB color or TTL monochrome monitors will work with the video board provided with the APEX 200 computer. Composite monitors are not supported. IBM PC- compatible EGA and VGA monitors can also be used if the existing video board is replaced with an EGA or VGA video board (available from computer dealers). The system must be configured for EGA or VGA by selecting "Special Options" under Video in the SETUP program.
A standard television set cannot be used with the APEX 200, although there are some new TV sets being manufactured which can also be used as computer monitors with the proper interface card.   Check with a computer dealer for more information.

Q. How many option cards can be installed in the APEX 200?

A. The APEX 200 has six I/O expansion slots (3 8 - bit and 3 16 - bit). The video adapter board and the SPF2 board occupy two 8 - bit slots and the hard. disk controller takes up a 16 - bit slot in the APEX 200.   The I/O expansion slots can be used for a wide variety of IBM PC (8 - bit) or AT (16 - bit) compatible option cards.

Q. What kind of mouse works with the APEX 200?

A. There are many IBM PC- compatible mice that will work with the APEX 200. Most manufacturers make two different types. A bus mouse comes with its own interface board and takes up an I/O expansion slot in the computer. Ensure the IRQ jumpers on the bus mouse board are set up for IBM/AT compatibility. A serial mouse plugs directly into the serial port and doesn't use any option slots.   Microsoft, Logitech, Genius, and Mouse Systems are popular models that can be used.

Q. What kind of option cards are available for the APEX 200 computer and where can I buy them?

A. Most IBM PC/XT or AT- compatible option boards should work in the APEX 200 computer.   Some products are "speed sensitive" and are not designed to work at the higher clock speeds (above 8MHz). You should visit a computer retail store to see a wide range of products. Since there are many different manufacturers it is impossible for Epson to test all option boards available to insure compatibility. We recommend that you purchase boards from a dealer who will exchange the board if for some reason it is not compatible.

Q. What kind of joystick can I use with the APEX 200 and where do you connect it?

A. There are many IBM PC-compatible joysticks available and some have different types of connectors.   The joystick connector must match the connector type on the board it is being used with.   An IBM PC-compatible joystick with a 15 - pin IBM compatible game port connector must be used with the Epson APEX 200. We recommend using the Kraft Premium or Kraft KC3 joystick, as we have tested them with the APEX 200. You do not need to purchase a game card as it is included with the APEX 200 video adapter card.

Q. How do you connect two joysticks when there is only one joystick connector?

A. A joystick adapter cable with 3 connectors is available from computer dealers which allows you to connect two joysticks into the single port.

Q. What type of modem can be used with the APEX 200?

A. IBM PC/XT- compatible internal modems can be used, as well as, external modems which connect to the serial interface port.

Epson manufactures both types of modems, the Epson Link 1200 external 1200 baud modem (Epson Part No. C202A- A) and the Epson Link 1200 - PC internal modem (Epson Part No. C203A- A), which can be purchased from Epson Accessories, Inc. at 1 - 800 - 873 - 7766.

Q. Will the APEX 200 work in foreign countries?

A. The APEX 200 computer can be used in both the United States and internationally simply by selecting the appropriate input voltage on the voltage selection switch located on the rear of the unit. The APEX 200 will operate on either 115VAC or 230VAC at 50/60 Hz power.

Most monitors and printers are not designed to operate on dual voltages and will be damaged if plugged into the wrong AC voltage. This applies to the Apex monitors and printers as well. You should use a heavy duty step down transformer to convert 230VAC to 115VAC for these types of products.

Q. What streamer tape drives can be used for high speed backup?

A. The APEX 200 has been tested with the following file backup units:

        Backup Diskit - 60MB, Model TEX- 60 (Idea Associates)
        Everex Stream - 20MB, Model 4.02 (Everex Systems, Inc.)
        Mountain Series 4000 Filesafe (Mountain Computer, Inc.)
        Tecmar QT - 60e   (Tecmar Inc.)
        Tallgrass TG - 4060 +   (Tallgrass Technologies Corp.)

Q. Are there any extension cables available for the APEX 200 enhanced keyboard?

A. Epson does not provide extension cables due to FCC restrictions. Third patty extension cables will work although they will not have a 90 degree angle connector.

Q. What are the CPU wait states for the APEX 200?

A. The default wait state for the APEX 200 I/O bus is 1, adjustable to 4, 3, or 2 by setting jumpers J2 and J3 on the ANDRO board according to the User's Guide. The system memory, (RAM and ROM) defaults to one wait state adjustable to two by setting jumper J1 to B on the ANDRO board.

Q. What extended memory boards are compatible with the APEX 200?

A. Epson recommends the following memory expansion boards:

AST Research	Advantage Premium
AST Research *	Rampage 286
Intel Corp.	Aboveboard Plus
STB Systems *	Grande Byte
STB Systems *	Rio Grande
Profit Systems	Elite 16
Micron Technology	Micron

* Will run at 8MHz, not at 12MHz CPU speed.

Q. Will it support Unix and/or Xenix? Which versions?

A. The APEX 200 has been tested with the Santa Cruz Operations Xenix Rel. 2.1 and IBM Xenix Vers. 1.

Q. What terminal emulation boards are compatible with the APEX 200?

A. The following boards have been tested and approved.

3278/79 Emulation Adapter	IBM
5250 Adapter	IBM
IRMA/2	DCA. Inc.

Q. Can it be used as a Local Area Network Server or Workstation?

A. The APEX 200 has been tested in the network environment using 3COM, IBM Token - Ring, and IBM PC Network adapters with Novell Netware. It can be used both as a server and a workstation.   When installing the system as a file server be sure to use an alternate IRQ other than IRQ2 by setting the jumpers on the network adapter board. To ensure correct operation, always start up the system using the lower 8MHz CPU speed, then switch to the higher speed to determine that the system will run at the higher speed.   Some adapter boards are not rated for the higher speed.

EPSON

Product Support Bulletin

Subject: Proper Method for Running Benchmark and Diagnostics Programs

Date: 06/04/93   PSB No: S-0158
Page(s): 1 of 1   Originator: MWT

This bulletin describes the proper method for running any benchmark or diagnostics programs. This applies to any computer system.

In most cases, the computer should be started using an MS-DOS boot diskette that's 'clean' - in other words, one with no CONFIG.SYS or AUTOEXEC.BAT files. The appropriate executable can then be run, either from diskette or hard drive.

There will be some exceptions to the above rule. In attempting to benchmark or troubleshoot any add-on that requires a device driver (CD-ROM, local area network, etc.), obviously the necessary device driver(s) must be loaded. Also, some programs will require a minimum number of FILES or BUFFERS to be defined in the CONFIG.SYS file. Such programs will usually display this requirement if they are run without the necessary CONFIG.SYS file.

For the most consistent results, use the absolute minimal boot configuration that's allowed by the hardware being tested.