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**MCS  
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THE NETHERLANDS**

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**Service  
Maintenance  
Manual**

**CELEBRIS 486  
PC**

**K-MN-SD00000-08-JG00.A**

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November 1995

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## November 1995

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# Preface

The Digital CELEBRIS 486 Service Maintenance Manual is a troubleshooting guide that can be used for reference when servicing the CELEBRIS 486 line of PC's.

Digital Equipment Corporation reserves the right to make changes to the Digital CELEBRIS 486 series without notice. Accordingly, the diagrams and procedures in this document may not apply to the computer(s) to be serviced since many of the diagnostic tests are designed to test more than one product.



## CAUTION

**Digital recommends that only A+ certified engineers attempt to repair this equipment. All troubleshooting and repair procedures are detailed to support subassembly/module level exchange. Because of the complexity of the individual boards and subassemblies, no one should attempt to make repairs at component level or to make modifications to any printed wiring board. Improper repairs can create a safety hazard. Any indications of component replacement or printed wiring board modifications may void warranty or exchange allowances.**

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# Chapter 1

# Product Description

## Product Introduction

Digital CELEBRIS 486 computers are high-performance personal computers equipped with the latest computing technology. They can be used as standalone computers, as client, or as servers in a network environment. Developed using the following state-of-the-art technology, these computers are the most value packed low-profile (Slimline) desktop computers in their class.

### The following models are currently available:

- ◆ CELEBRIS 466 low-profile enclosure with 66 MHz Intel 486DX2
- ◆ CELEBRIS 4100 low-profile enclosure with 100 MHz Intel 486DX4

### Significant features include:

- ◆ PCI local bus technology
- ◆ ZIF (Zero Insertion Force) socket supports also Intel P24T Overdrive, 5V and 3.3V (with voltage regulator)
- ◆ 8 MB system Ram, expandable to 128 MB
- ◆ 256 KB external Cache
- ◆ Plug and Play
- ◆ Enhanced local bus IDE
- ◆ One PCI, One ISA, one PCI/ISA interleaved, one PCI/ISA personal slot
- ◆ Advanced PCI S3864 video controller, 1MB VRAM
  - ◇ 1024 x 768 with 256 colors at 75 Hz
  - ◇ 800 x 600 with 256 colors at 75 Hz
  - ◇ 640 x 480 with 256 colors at 75 Hz
- ◆ Flash BIOS
- ◆ Screwless design
- ◆ “Energy Star” compliant (30 Watt or less EPA requirement)

## Product Models Information

EC = English, French, German, Italian and Spanish.

ED = Danish, Dutch, English, Finnish, French (France excluded), Norwegian and Swedish.

### CELEBRIS 486 PC Family Models

<i>Product</i>	<i>Model</i>	<i>FDD</i>	<i>HDD</i>	<i>Memory</i>	<i>Cache</i>	<i>Options</i>
<b>CELEBRIS 466</b>	FR-821WW-AC	1.44MB	-	8MB	256KB	
	FR-811E*-WB	1.44MB	270MB	8MB	256KB	
	FR-821E*-WC	1.44MB	540MB	8MB	256KB	
<b>CELEBRIS 4100</b>	FR-822WW-AD	1.44MB	-	8MB	256KB	
	FR-822E*-WB	1.44MB	270MB	8MB	256KB	
	FR-822E*-WC	1.44MB	540MB	8MB	256KB	



## Chapter 2

## System Utilities & Configuration

### System Utilities

The following sections provide detailed instructions on running the MS-DOS utilities contained on the supplied utilities diskettes.

#### PHLASH.EXE

All computers have BIOS software in a read-only, non-volatile memory (ROM) chip. This BIOS initializes hardware and boots the operating system when the computer is turned on. The BIOS also provides access to other services such as keyboard and disk drives.

The computer comes equipped with flash memory. This means that the computer's BIOS can be restored simply by running the PHLASH.EXE utility. The computer's BIOS may also be upgraded to future releases by running PHLASH.EXE along with any flash BIOS update diskette if necessary.

#### Before Using PHLASH.EXE

When not familiar with utility programs and their uses, carefully read and understand the following instructions before attempting to use PHLASH.EXE.

Have the following items available:

- ◆ Blank 3½-inch 1.44 MB formatted diskette
- ◆ Diskette copy of the computer utilities



#### CAUTION

When not familiar with utility programs and their uses, carefully read and understand all of the listed topics before attempting to use PHLASH.EXE.

Before attempting to upgrade the flash BIOS, ensure that **J24** is set correctly. To perform a flash BIOS upgrade, **J24** must be set to *enable*. After the upgrade, make sure **J24** is set back to *disable* as a security measure. Refer to “*Main Logic Board Jumper Settings*”.

## Creating a Crisis Recovery Diskette

A crisis recovery diskette should always be prepared before attempting to upgrade the BIOS. This diskette is used to reprogram the BIOS in case the flash process fails. To create a crisis recovery diskette:

- 1) Turn on the computer and allow the POST to complete. If POST detects an error refer to “*Troubleshooting*” and take the appropriate steps to correct the problem. After the problem has been resolved, restart the computer.
- 2) At the MS-DOS prompt, copy the following files from the System Utilities diskette to a directory on the hard disk drive:  
    MINIDOS.SYS  
    VGABIOS.EXE  
    MAKEBOOT.EXE  
    MAKEBD.BAT
- 3) Insert a blank formatted diskette into drive A.
- 4) On drive A, make a directory for the files previously copied.
- 5) From drive C: type `MAKEBD .BAT` This copies the files to drive A.
- 6) The monitor displays a warning about deleting the files on drive A. This ensures that the bootsector is properly positioned on the diskette.
- 7) Remove the crisis recovery diskette from drive A and store it in a safe place.

## Using the Crisis Recovery Diskette

The crisis recovery diskette must be used only if the computer's BIOS fails or if a BIOS upgrade was unsuccessful. If the computer's BIOS fails:

- ◆ POST detects an error after a normal boot cycle or a BIOS upgrade.
- ◆ The BIOS in the bootblock memory executes.
- ◆ The computer beeps several times.
- ◆ The diskette drive begins searching for the crisis recovery diskette.

## Upgrading the computer BIOS

These utilities and video drivers enable to upgrade or restore the computer's BIOS and take full advantage of its enhanced video features.

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**NOTE** If this is the first time using these utility programs and/or video drivers it is recommended to follow the procedures in the order given.

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- 1) Turn on or reboot the computer. If POST detects an error, refer to “*Troubleshooting*” for possible causes and suggested solutions.
- 2) Create a recovery diskette if not already done so.
- 3) Insert backup copy of the System Utilities diskette into drive A.
- 4) At the MS-DOS prompt, type **a: PHLASH**.  
A screen appears on the monitor warning that you are about to erase the computer's BIOS.
- 5) Press **[Enter]** to continue. Else, press **[ESC]** to cancel.  
Once **[Enter]** has been pressed, PHLASH.EXE automatically updates the computer's BIOS.  
After the flashing process completes, the computer automatically reboots itself so changes immediately take effect.
- 6) Remove the system utilities diskette.

## BIOS Setup Utility

The information listed below explains how to configure the computer using the BIOS Setup utility. If the computer was delivered with factory-installed software, it has already been configured.

When familiar with utility programs and their uses, refer to the material in the options table while updating the computer. Otherwise, carefully read and understand all the information in this chapter before attempting to modify the computer's configuration settings.

### Running the BIOS Setup Utility

The BIOS Setup utility enables to select and permanently store information about the computer's hardware and software in the battery-backed memory of the CMOS RAM. This information takes effect each time the computer boots and can be changed each time you run setup.

Use the BIOS Setup utility when experiencing problems with the hard disk or need to reconfigure the computer. In addition, the BIOS Setup utility might need to be used to modify the configuration after adding or removing hardware, or after changing computer settings.

To run the BIOS Setup utility:

- 1) Turn on the computer and allow the POST to complete.
- 2) Make a note of any configuration errors listed, and then press **[F2]** to display the main menu.
- 3) Follow the instructions on the monitor screen and any on-line help pop-up screens to configure the computer.

## Helpful Hints

- ◆ Several keyboard function keys and numeric keypad keys are assigned to help selecting menus and options, changing option values, and displaying help information. These keys are displayed at the bottom of the main menu and from the General Help pop-up screen.
- ◆ Item-specific help is available anytime during the setup process and appears at the right of the setup screen each time an option is highlighted. This on-line help provides information about a highlighted option.
- ◆ Select "Save Changes & Exit" to save all Setup values.
- ◆ Select "Discard Changes & Exit" to exit Setup without recording any changes.
- ◆ Select "Get Default Values" to set all Setup options to their default values.
- ◆ Select "Load Previous Changes" to restore all CMOS values from the last session.
- ◆ Select "Save Changes" to save all selections without exiting Setup.
- ◆ Press [Esc] to exit the Setup utility.

## BIOS Setup Utility Options

Specific notes pertaining to some Setup options may be obtained by clicking on colored entries mentioned in the "Menu Field" column below, and/or by clicking on the icons in the rightmost column.

## Main Menu Options

<i>Menu Field</i>	<i>Settings</i>	<i>Comments</i>
<b>System time</b>	Current time	Displays the current time.
<b>System date</b>	Current date	Displays the current date.
<b>Language</b>	English Español Français Deutsch Italiano	The system utilities diskette contains all the languages listed as possible settings. Use the PHLASH.EXE program and the desired language BIOS file to load a different language. The BIOS Setup utility choices are English and one other language. For example, English and French, English and German, depending on the language kit ordered.
<b>Video system</b>	EGA / VGA CGA 80x25 Monochrome	Sets the video controller type.
<b>System memory</b>	Not user selectable	Displays the amount of base (conventional) memory each time the computer boots.
<b>Extended memory</b>	Not user selectable	Displays the amount of extended memory each time the computer boots.
<b>Diskette A/ Diskette B</b>	1.44 MB, 3½ 2.88 MB, 3½ Not Installed 360 KB, 5¼ 1.2 MB, 5¼ 720 KB, 3½	Sets the size and density of diskette drives.
<b>Speaker volume</b>	1 through 7	Sets the loudness of the computer's speaker.

## Boot Options

<i>Menu Fields</i>	<i>Settings</i>	<i>Comments</i>
<b>Boot sequence</b>	A: then C: C: then A: C: only	Each time the computer boots, it will load the operating system from the sequence selected.
<b>Summary screen</b>	Enabled Disabled	Enabling this option causes the computer to display configuration parameters (in the form of a summary screen) during boot.
<b>Boot from drive A</b>	Enabled Disabled	Enables or disables drive A as the logical boot device.
<b>Boot from drive C</b>	Enabled Disabled	Enables or disables drive C as the logical boot device.
<b>Boot from Serial Port</b>	Enabled Disabled	Enables or disables a serial port as the logical boot device.

## Fixed Disk Setup Options

### IDE Adapter 0/1 Master/Slave

<i>Menu Fields</i>	<i>Settings</i>	<i>Comments</i>
<b>Autotype fixed disk</b>		Press [Enter] to detect and fill in the installed hard disk drive parameters in the remaining fields.
<b>Type</b>	1 to 39 User	Selecting None to 39 automatically fills in the remaining fields in this menu. Selecting User prompts to fill in the remaining fields with the installed hard disk drive's parameters.
<b>Cylinders</b>	1 to 2048	Displays the number of cylinders.
<b>Heads</b>	1 to 16	Displays the number of heads.
<b>Sectors/track</b>	1 to 64	Displays the number of sectors/tracks.
<b>Landing zone</b>	1 to 2048	Displays the number of cylinders specified as the landing zone for read/write heads.
<b>Write precomp</b>	1 to 2048 None	Displays the number of cylinders that have their write timing changed.
<b>Multi-sector transfers</b>	Disabled Auto 2 blocks 4 blocks 8 blocks 16 blocks	Determines the number of sectors per block for multiple sector transfers. Auto refers to the size the disk returns when queried.
<b>LBA control mode</b>	Disabled Enabled	Enables or disables the LBA hard disk drive addressing option.
<b>32 bit I/O</b>	Disabled Enabled	Enables or disables the 32-bit hard disk drive data transfer option.
<b>Transfer mode</b>	Fast PIO3 Standard Fast PIO1 Fast PIO2	Selects the method of data transfer to and from the hard disk drive. Autotype the hard disk drive to select the optimum transfer mode.

**Extended Features**

<i>Menu Fields</i>	<i>Settings</i>	<i>Comments</i>
<b>Numlock</b>	Auto On Off	Turns Numlock on or off each time the computer boots.
<b>Keyboard auto-repeat rate</b>	2/sec 6/sec 10/sec 13.3/sec 18.5/sec 21.8/sec 26.7/sec 30/sec	Sets the number of times a second to repeat a keystroke while holding the key down.
<b>Keyboard auto-repeat delay</b>	1/4 sec 1/2 sec 3/4 sec 1 sec	Sets the delay time after a key is held down before it begins to repeat a keystroke.

**Integrated Peripherals**

<i>Menu Fields</i>	<i>Settings</i>	<i>Comments</i>
<b>IRQ 12</b>	Disabled Enabled	Enables or disables the IRQ12 interrupt for the Mouse.
<b>COM port</b>	Auto Disabled 3F8, IRQ 4 2F8, IRQ 3	Enables or disables any desired onboard serial port at the specified address.
<b>COM port</b>	Auto Disabled 3F8, IRQ 4 2F8, IRQ 3	Enables or disables any desired onboard serial port at the specified address.
<b>LPT port</b>	Auto Disabled 378, IRQ 7 3BC, IRQ 7 278, IRQ 5	Enables or disables the onboard port at the specified address.
<b>Diskette controller</b>	Enabled Disabled	Enables or disables the onboard diskette controller.
<b>PCI IDE controller</b>	Enabled Disabled	Enables or disables the onboard IDE controller.

## Memory and Cache Options

<b>Menu Fields</b>	<b>Settings</b>	<b>Comments</b>
<b>External cache</b>	Enabled Disabled	Enables or disables the computer's external cache.
<b>Cache mode</b>	Write through Write back	Set's the external cache to either write through or write back mode.
<b>System shadow</b>	Not user selectable	The computer's system BIOS is always shadowed.
<b>Video shadow</b>	Enabled Disabled	Enables or disables the computer's video BIOS shadowing option.
<b>Shadow Option ROM's:</b> C800 - CFFF D000 - D7FF D800 - DFFF E000 - E7FF E800 - EFFF	Enabled Disabled	Allows to enable or disable shadowing of individual segments of ROM to increase computer performance.
<b>Disable memory between 512K- 640K</b>	Disabled Enabled	Enables or disables the memory region between 512K and 640 KB. If enabled, the amount of conventional memory under MS-DOS is reduced by 128KB.
<b>Disable memory between 12M - 13M</b>	Disabled Enabled	Enables or disables the memory region between 12MB and 13MB.

## Advanced Chip Set Control

<b>Menu Fields</b>	<b>Settings</b>	<b>Comments</b>
<b>Hidden refresh</b>	Disabled Enabled	Enables or disables the computer's hidden refresh. Enabling this option causes regular memory refreshes without holding up the CPU.
<b>Code read page mode</b>	Disabled Enabled	Enables or disables the code read page mode option. Enabling this option improves computer performance each time code contains sequential instructions.
<b>Write page mode</b>	Disabled Enabled	Enables or disables the write page mode option. Enabling this option improves computer performance each time data is written sequentially.
<b>CPU to PCI write buffers</b>	Disabled Enabled	Enables or disables the CPU to PCI write buffer option. Enabling this option causes CPU data to be stored in buffers before writing to PCI.
<b>PCI to DRAM write buffers</b>	Disabled Enabled	Enables or disables the PCI to DRAM write buffer option. Enabling this option causes PCI data to be stored in buffers before writing to DRAM.

**Advanced Chip Set Control** (continued)

<i>Menu Fields</i>	<i>Settings</i>	<i>Comments</i>
<b>CPU to DRAM write buffers</b>	Disabled Enabled	Enables or disables the CPU to DRAM write buffer option. Enabling this option causes CPU data to be stored in buffers before writing to DRAM.
<b>Snoop ahead</b>	Disabled Enabled	Enables or disables the snoop ahead option. Enabling this option improves PCI bus master access to DRAM.
<b>PCI Memory burst cycles</b>	Disabled Enabled	Enables or disables the PCI memory burst option.
<b>Large disk access mode</b>	Disabled Enabled	Select DOS when MS-DOS has been installed. Select Other when another operating system has been installed. A large disk drive constitutes one that has more than 1024 cylinders, 16 heads, or 63 tracks per sector.

**Security and Anti-Virus Options**

<i>Menu Fields</i>	<i>Settings</i>	<i>Comments</i>
<b>Supervisor password is</b>	Not User selectable	Tells whether or not the supervisor's password is enabled or disabled.
<b>User password is</b>	Not User selectable	Tells whether or not the user's password is enabled or disabled.
<b>Set supervisor password</b>	Press [Enter]	Enables to set a supervisor password. Setting a supervisor password provides full access to all BIOS Setup utility menus.
<b>Set user password</b>	Press [Enter]	Enables to set a user password. Setting a User password restricts access to certain BIOS Setup utility menus.
<b>Password on boot</b>	Enabled Disabled	Enables or disables the enter password on boot option.
<b>Diskette access</b>	Supervisor User	Enables to control who has access to diskette drives.
<b>Fixed disk boot sector</b>	Normal Write protect	Enables to write protect the boot sector on the hard disk drive.
<b>Network</b>	Enabled Disabled	Enabling this option keeps the computer from being accessed during network operation.
<b>Quick lock</b>	Disabled Enabled	Enables or disables the computer's quick lock features. Note: the user password must be enabled for this feature to function.
<b>System backup reminder</b>	Disabled Enabled	Enables or disables the system backup reminder message.
<b>Virus check reminder</b>	Disabled Enabled	Enables or disables the virus check reminder message.



## Power Options

<i>Menu Fields</i>	<i>Settings</i>	<i>Comments</i>
<b>Hard Disk timer</b>	0 10 through 20	Sets the hard disk drive's inactivity period required before standby (motor off).
<b>Video timer</b>	0 5 through 60 (in multiples of 5)	Sets the monitor inactivity period required before standby (clear screen).

## Chapter 3

## Service Procedures

### Safety Requirements

**WARNING**

Static electricity collects on non-conductors such as paper, cloth, or plastic. A static discharge can be damaging even though you often cannot see or feel it.

---

The following safety precautions must be observed to insure product and personal safety and prevent damage to circuit boards and/or components:

- ◆ Always wear an ESD wrist strap when handling ESD sensitive material and be sure it is properly connected.
- ◆ Keep circuit boards and components away from non-conductors.
- ◆ Keep clothing away from circuit boards and components.
- ◆ Keep circuit boards in anti-static bags.
- ◆ Be cautious when AC power is exposed when working on an assembly.
- ◆ Always use an isolation transformer when diagnosing any terminals, monitors or power supplies when AC power is applied.
- ◆ Be cautious of very high voltage potentials when working with monitors.

There should be an approved insulating mat (for technician safety) in front of any workbench where monitors, terminals or power modules are being serviced when power is applied.

---

**NOTE** Do NOT wear ESD straps when working on terminals, monitors or power supplies when AC power is applied. This is to avoid the hazard of electrical shock.

---

## Recommended Tools

The following tools are needed for servicing Digital PC systems:

- ◆ Multimeter (4 1/2 digit)
- ◆ A philips screwdriver
- ◆ An antistatic wrist strap

## Other Materials Needed

Cleaning agent should be an all purpose cleaner that is used in-house.

## Special Tools Required

None.

## Remedial Diagnostic Test Software

- ◆ *QAPLUS/fe*, PC Advanced Diagnostic Software, latest version.  
Supplier information:  
*Diagsoft, Inc.*  
*5615 Scotts Valley Drive, Suite 140*  
*Scotts Valley, California 95066, U.S.A.*  
*Voice: 1-408-438-8247*  
*Fax: 1-408-438-7113*  
*Internet: <http://www.diagsoft.com>* (Diagsoft, Inc. homepage)

## Recommended Virus Detection and Cleanup Software

- ◆ *F-PROT*, Virus Detection and Cleanup Software, latest version.  
Supplier information:  
  
North America, South America, Australia and New Zealand:  
*Command Software Systems Inc.*  
*Tel: +1-407-575 3200*  
*Fax: +1-407-575 3026*  
  
Most of Europe, Africa, Middle and Far East:  
*Data Fellows Ltd*  
*Paivantaite 8*  
*FIN-02210 ESPOO*  
*FINLAND*  
*tel: +358-0-478 444*  
*fax: +358-0-478 44 599*  
*e-mail: [f-prot@datafellows.fi](mailto:f-prot@datafellows.fi)*  
*Internet: <http://www.datafellows.fi>* (Data Fellows Ltd. homepage)

## ECO/FCO Information

### BIOS Version Information

Refer to the Digital DECpc Bulletin Board Support (telephone number: **xx33 92960312**) for the latest information on BIOS upgrades.

# Unlocking and Removing Cover



**WARNING**

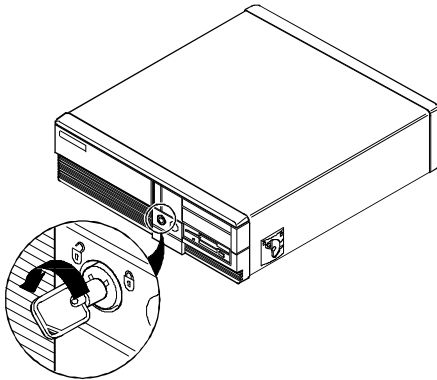
You might injure yourself or damage the computer if you attempt to remove the cover before unplugging ac and monitor power cords.

The computer's cover must be removed prior to installing any hardware option.

To remove the cover:

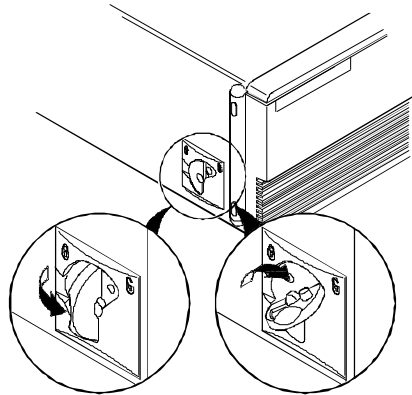
- 1) Unlock cover.
- 2) Lift both side locks out, then turn towards front of computer to release cover from chassis.
- 3) Carefully slide cover toward front of chassis until it clears lip of front bezel.
- 4) Carefully lift cover from chassis.

**Figure 3 - 1 Unlocking the Cover**

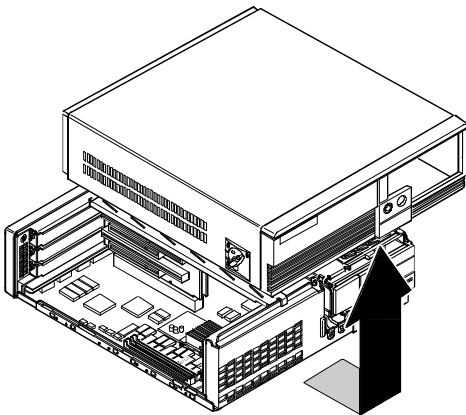


DEC00278-2

**Figure 3 - 2 Release cover**



DEC00505-2



DEC00505-

**Figure 3 - 3 Removing the Cover**

# Computer Components

<i>Figure Legend</i>	<i>Description</i>
<b>A</b>	Power supply.
<b>B</b>	Main logic board low-profile "Personality" expansion board slots.
<b>C</b>	Main Logic Board.
<b>D</b>	3½-inch diskette drive.
<b>E</b>	Front access drive bay.
<b>F</b>	Front internal drive bay.
<b>G</b>	Riser card (two PCI & one ISA or two ISA & one PCI).
<b>H</b>	Rear internal drive bay (under power supply).

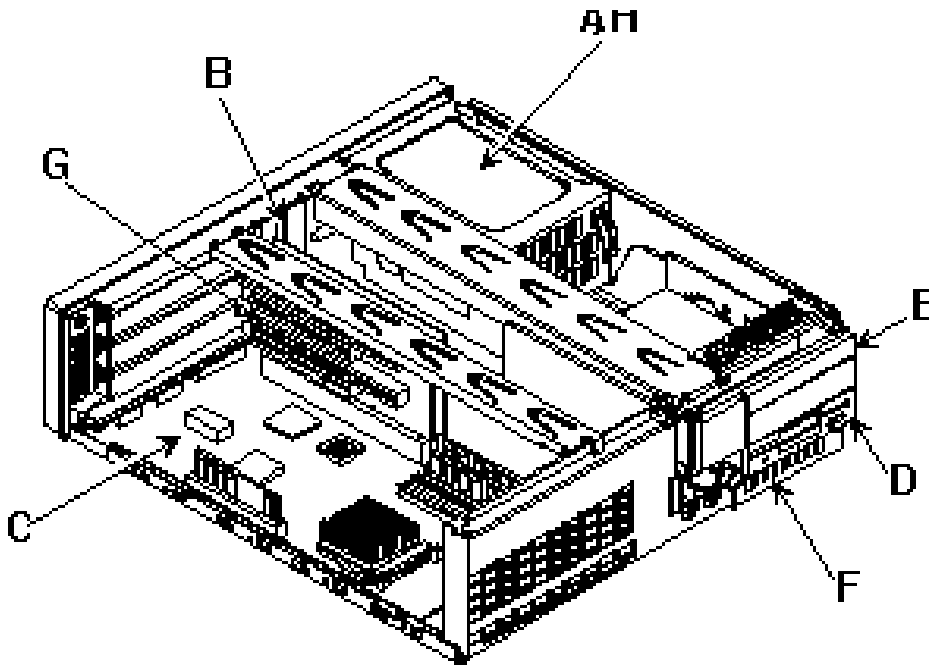
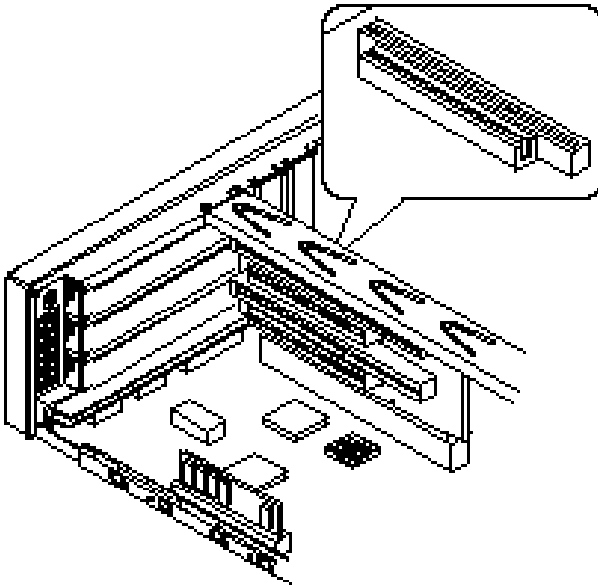


Figure 3 - 4 CELEBRIS 486 PC Family models

## Expansion Slots

The CELEBRIS 486 PC Family computer models contain six expansion slots for installing both Plug-and-Play and non-Plug-and-Play expansion boards. Four of the slots are located on the computer's riser card. The remaining two "Personality" slots, located on the computer's main logic board, are reserved for a dedicated low-profile PCI video adapter and an optional low-profile ISA board.

<i>Expansion Slot</i>	<i>Slot Type</i>	<i>Description</i>
<b>J1</b>	ISA	Supports full-length industry-standard 16-bit ISA expansion boards. Uses the top expansion slot at the rear panel.
<b>J2</b>	ISA/PCI	Supports full-length industry-standard 16-bit ISA expansion boards or a full-length 32-bits PCI local bus expansion board. Uses the middle expansion slot at the rear panel.
<b>J3</b>	PCI	Supports full-length 32-bits PCI local bus expansion board. Uses the bottom expansion slot at the rear panel.
<b>J4</b>	ISA	Supports full-length industry-standard 16-bit ISA expansion boards. Uses the "Personality" slot at the rear panel.
<b>J5</b>	PCI	Supports full-length 32-bits PCI local bus expansion boards (This slot contains the dedicated video adapter). Uses the "Personality" slot at the rear panel.



**Figure 3 - 5 CELEBRIS 486  
PC Family Models Expansion  
slots**



## Main Logic Board Jumpers

Jumper pins allow to set specific computer parameters. They are set by changing the pin location of jumper blocks. Note that the square pin of each jumper block is pin 1. A jumper block is a small plastic-encased conductor (shorting plug) that slips over the pins. To change a jumper setting, remove the jumper from its current location. Place the jumper over the two pins designated for the desired setting. Press the jumper evenly onto the pins. Be careful not to bend the pins.



### CAUTION

Do not touch any electronic component unless you are safely grounded. Wear a grounded wrist strap or touch an exposed metal part of the system box chassis. A static discharge from your fingers can result in permanent damage to electronic components.

## Main Logic Board Jumper Settings

Settings shown in *bold italics* are factory defaults.

<b>Feature</b>	<b>Description</b>	<b>Setting</b>
<b>Setup Control</b>	Enable <i>Disable</i>	J25, pins 1 and 2 jumpered <i>J25, pins 2 and 3 jumpered</i>
<b>Serial Boot control</b>	Enable <i>Disable</i>	J7, pins 1 and 2 jumpered <i>J7, pins 2 and 3 jumpered</i>
<b>Serial Boot control</b>	Enable <i>Disable</i>	J8, pins 1 and 2 jumpered <i>J8, pins 2 and 3 jumpered</i>
<b>CPU frequency</b>	<i>33/66/100 Mhz</i> 25/50 MHz	<i>J6, pins 1 and 2 jumpered</i> J6, pins 2 and 3 jumpered
<b>CPU type</b>	<i>i486-SX/DX/DX2</i> P24D,P24T, P24CT	<i>J50, Open</i> J50, Jumpered
<b>Diskette write control</b>	Enable <i>Disable</i>	J26, pins 1 and 2 jumpered <i>J26, pins 2 and 3 jumpered</i>
<b>EEPROM write control</b>	Enable <i>Disable</i>	J24, pins 1 and 2 jumpered <i>J24, pins 2 and 3 jumpered</i>
<b>CPU frequency</b>	Enable <i>Disable</i>	J6, pins 2 and 3 jumpered <i>J6, pins 1 and 2 jumpered</i>



Main Logic Board Jumper Locations

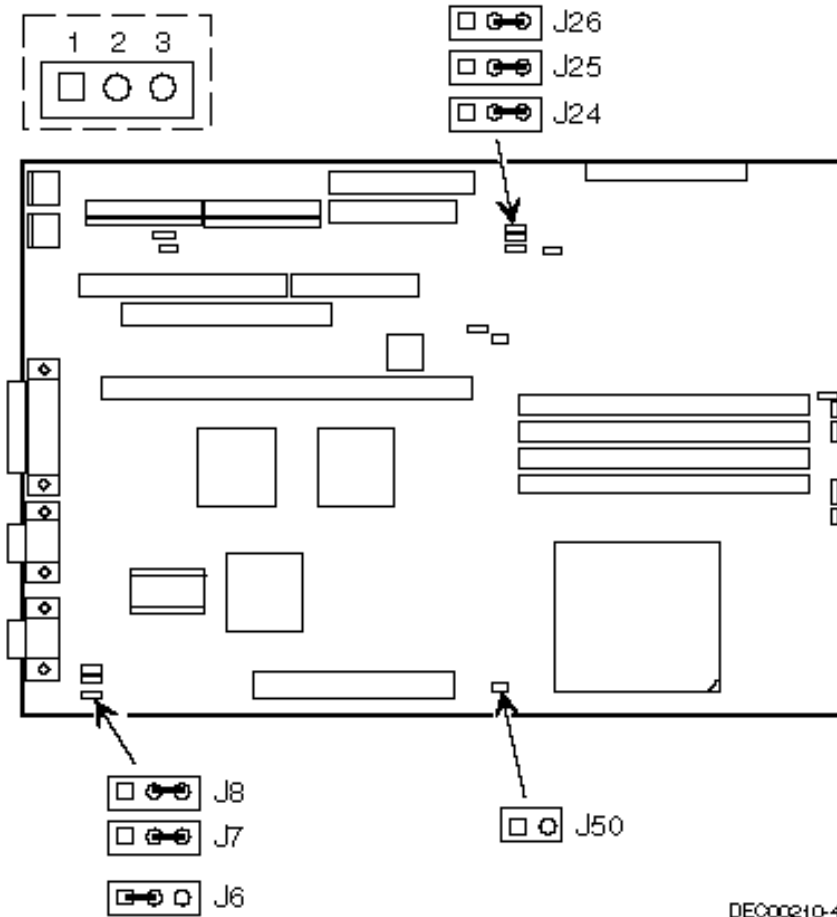


Figure 3 - 6 Main Logic Board Jumpers Locations

## Computer Memory Configurations

Adding more memory allows the computer to run larger, more complicated software and run it faster. The CELEBRIS 486 PC Family computer comes with at least 8 MB of memory. This amount can be increased up to 128 MB.

When adding additional memory make sure to:

- ◆ Install 36-bit SIMMs having an access time of 70 ns or less.
- ◆ Fill two sockets at a time using the same SIMM size, type and speed.  
Supported SIMM sizes: 4 MB, 8 MB, 16 MB, and 32 MB.
- ◆ Fill bank 0 before bank 1 (Refer to figure 3 - 7).

<i>Bank 0</i>	<i>Bank 0</i>	<i>Bank 1</i>	<i>Bank 1</i>	<i>Total</i>
4 MB	4 MB			<b>8 MB</b>
4 MB	4 MB	4 MB	4 MB	<b>16 MB</b>
8 MB	8 MB			<b>16 MB</b>
4 MB	4 MB	8 MB	8 MB	<b>24 MB</b>
8 MB	8 MB	8 MB	8 MB	<b>32 MB</b>
16 MB	16 MB			<b>32 MB</b>
4 MB	4 MB	16 MB	16 MB	<b>40 MB</b>
8 MB	8 MB	16 MB	16 MB	<b>48 MB</b>
16 MB	16 MB	16 MB	16 MB	<b>64 MB</b>
32 MB	32 MB			<b>64 MB</b>
4 MB	4 MB	32 MB	32 MB	<b>72 MB</b>
8 MB	8 MB	32 MB	32 MB	<b>80 MB</b>
16 MB	16 MB	32 MB	32 MB	<b>96 MB</b>
32 MB	32 MB	32 MB	32 MB	<b>128 MB</b>

### SIMM Sockets Locations

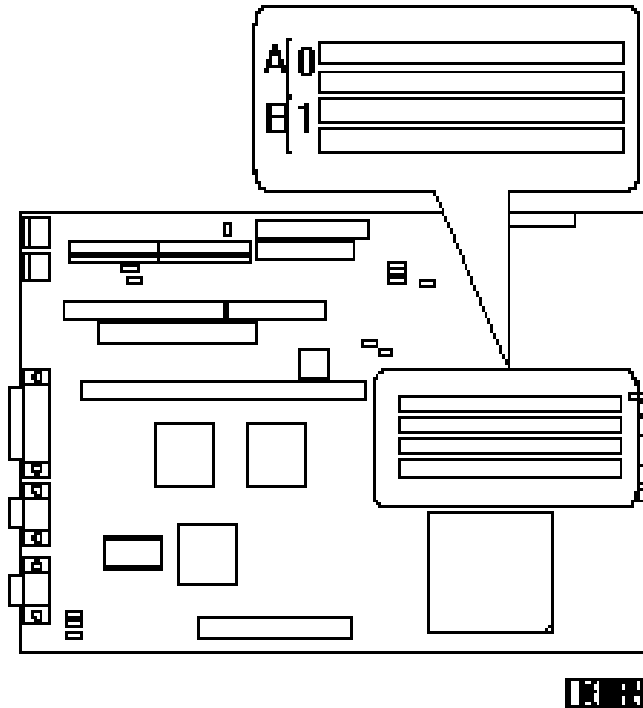


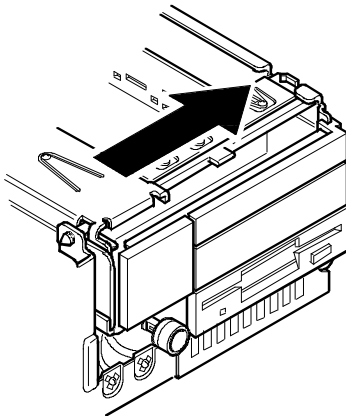
Figure 3 - 7 CELEBRIS 486 PC Family SIMM Sockets Locations

## Part Removal and Replacement

### Opening the Device Bay & Power Supply Subassembly

Open the device bay & power supply subassembly in order to install, remove, and/or connect certain components and peripheral devices. To open the subassembly:

- 1) Turn off the computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Unlock and remove cover.
- 4) Slide *front locking mechanism* to right to release subassembly.
- 5) Lift up on subassembly and *lock in place*.



DEC00325-2

Figure 3 - 8 Release Front Locking mechanism

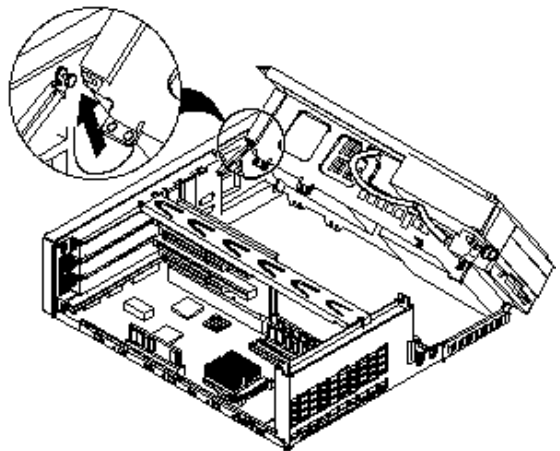


Figure 3 - 9 Lock in place

DEC00325-3

## Removing the 3½-Inch Diskette Drive.

To remove the 3½-inch diskette drive:

- 1) Turn off the computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Unlock and remove cover.
- 4) Remove two screws securing the right side of diskette drive to chassis.
- 5) Open the device bay & power supply subassembly.  
Refer to “Opening the Device Bay & Power Supply Subassembly”.
- 6) Disconnect power and ribbon cables.
- 7) Remove two screws securing diskette drive to chassis.
- 8) Slide the diskette drive out of the front of the chassis.

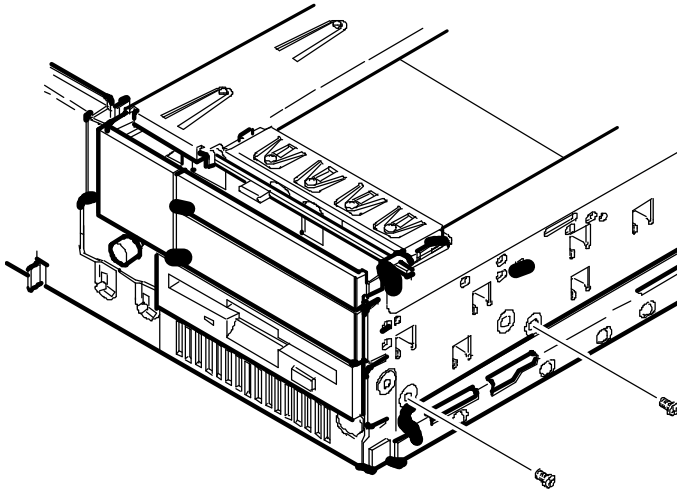


Figure 3 - 10 Removing the 3½-inch Diskette Drive

## Removing the Main Logic Board

To remove the Main Logic Board:

- 1) Turn off the computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Unlock and remove cover.
- 4) Remove all connectors.
- 5) Remove all expansion boards.
- 6) Remove the riser card and bracket.
- 7) Remove screws and lift the board out.

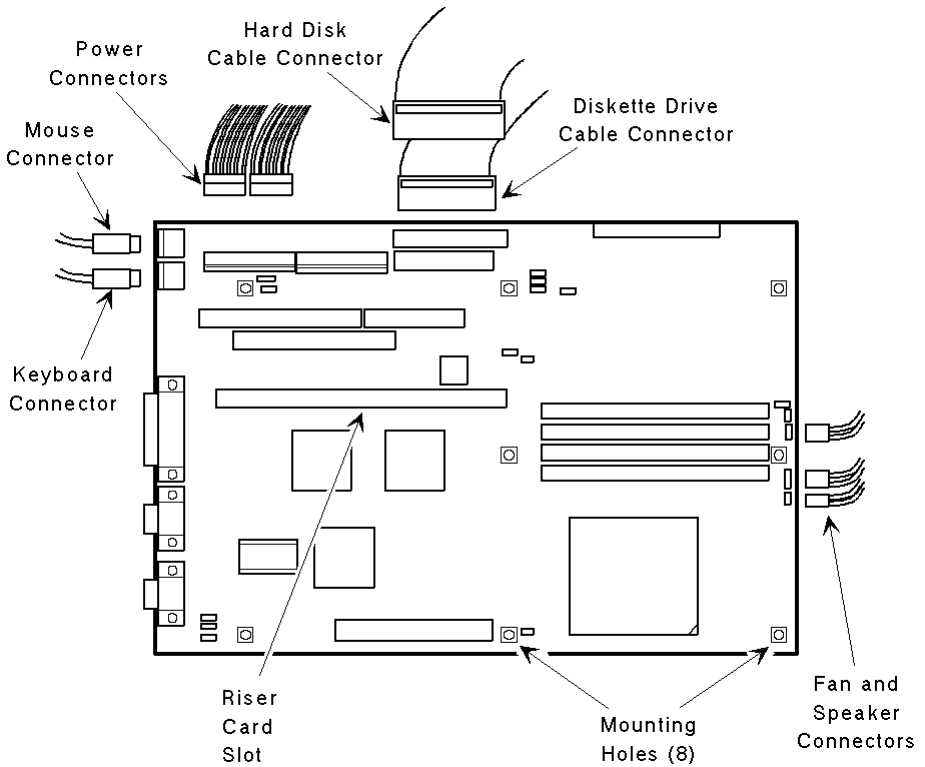


Figure 3 - 11 Removing the Mian Logic Board

## Removing the Power Supply

To remove the power supply:

- 1) Perform the steps necessary to open the device bay and power supply subassembly.
- 2) Remove power supply, IDE, and diskette cabling from main logic board noting their proper orientation.
- 3) While holding the device bay and power supply subassembly, carefully release the rear latch.
- 4) Carefully slide the entire subassembly away from chassis and place it upside down on antistatic surface.
- 5) Loosen two screws securing power on/off switch to chassis.
- 6) Remove screws securing power supply to chassis.
- 7) Remove power supply and power on/off switch from the subassembly.

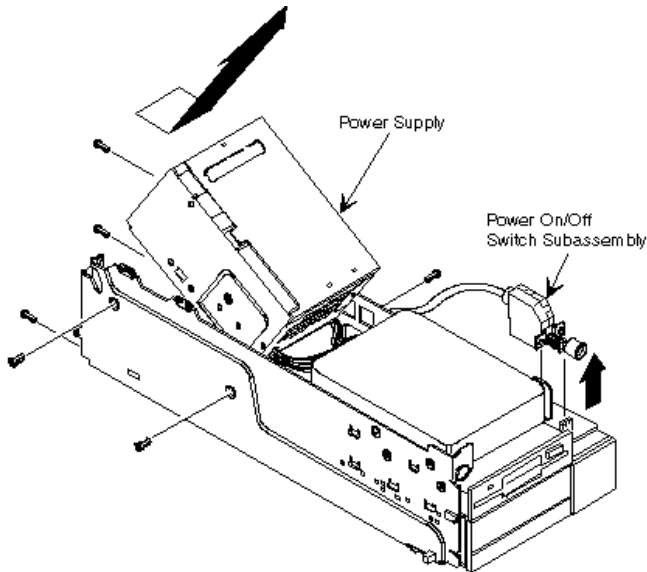


Figure 3 - 12 Removing the on Power Supply

## Removing the Riser Card & Bracket

To remove the riser card and bracket:

- 1) Turn off the computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Unlock and remove cover.
- 4) Remove all expansion boards.
- 5) Carefully lift riser card and bracket from computer.

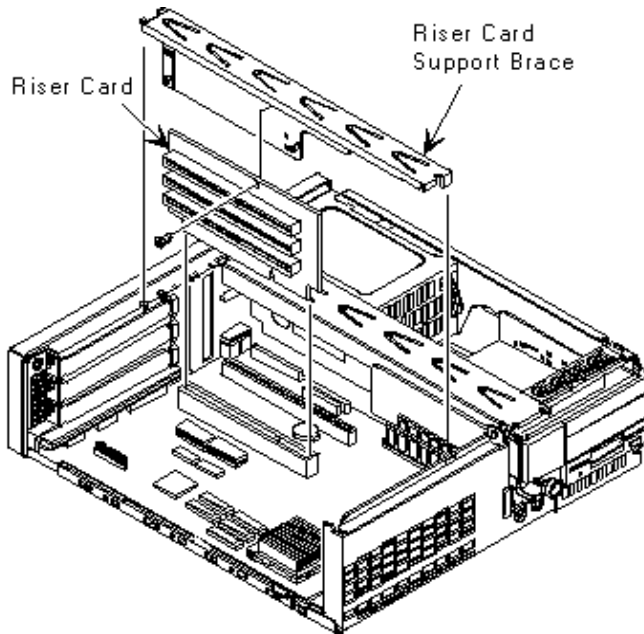


Figure 3 - 13 Removing the Riser Card & Bracket



# Installation Procedures

## Installing a Higher Performance CPU

The CELEBRIS 486 PC Family main logic board is equipped with an Intel Pentium Processor OverDrive Ready Socket (Socket 3 ZIF). This socket is capable of supporting faster Intel i486 processors as well as future Pentium OverDrive processors.

**NOTE** Some variations of the Intel 486 DX4 100 MHz microprocessors are supplied with a 3.3V dc-regulator card.

To install a higher performance CPU:

- 1) Turn off the computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Unlock and remove cover.
- 4) Lift up on lever to release old CPU.
- 5) Remove old CPU.
- 6) Install new CPU.
- 7) Make sure pin 1 on CPU (A) is aligned with pin 1 on ZIF socket.
- 8) Return release lever to its original position and then set all appropriate CPU jumpers.  
Refer to "Main Logic Board Jumpers".
- 9) Replace and lock cover.
- 10) Connect external devices and restore power.

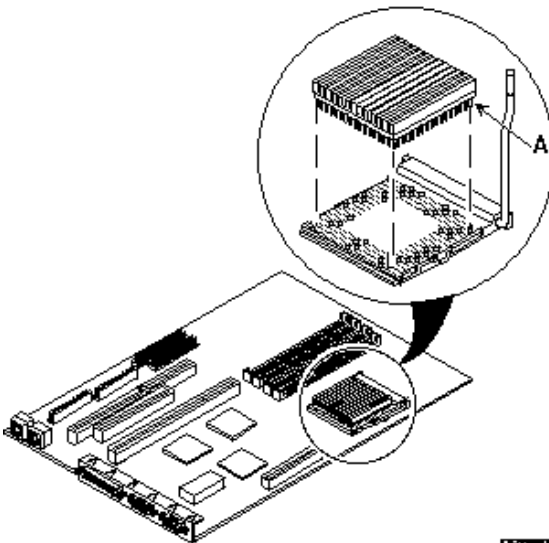


Figure 3 - 14 Installing a Higher Performance CPU



## Installing External Cache Memory

**CAUTION**

Installing external cache memory incorrectly might cause the computer to malfunction.

The computer is equipped with a socket for installing a 256 KB external cache module. This module is designed to improve the performance of the installed CPU.

To install the cache module:

- 1) Turn off the computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Unlock and remove cover.
- 4) Remove external cache from anti-static bag, and install it in socket.
- 5) Replace and lock cover.
- 6) Connect external devices and restore power.
- 7) If necessary, run BIOS Setup utility and enable external cache option.

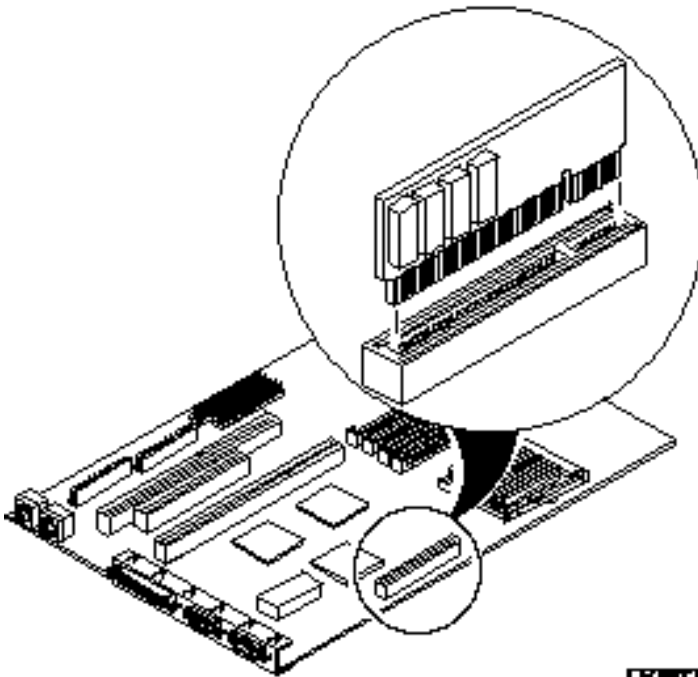


Figure 3 - 15  
Installing External  
Cache Memory



# Replacement Procedures

## Replacing the Computer Battery

The CELEBRIS 486 PC battery runs the computer clock and retains setup information when it is turned off. If the computer fails to retain the correct date, time, or configuration settings when it is turned on, replace the computer's battery.

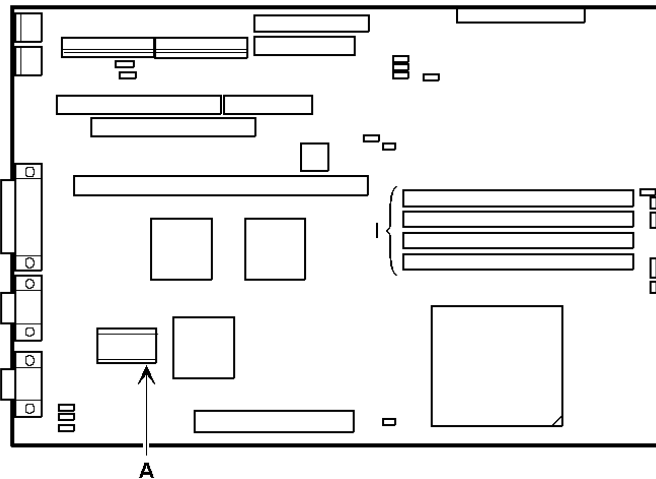


**WARNING**

Depending on your locality, the computer's battery might be considered hazardous waste. Make sure you follow any state or local statute to properly dispose of the old battery.

To replace the battery, perform the following:

- 1) Record computer configuration settings using the BIOS Setup utility.
- 2) Turn off the computer.
- 3) Disconnect external devices, ac power, and monitor power.
- 4) Unlock and remove cover.
- 5) Carefully lift up on retaining clip and remove old battery. Refer to Figure 3-16 (A).
- 6) Install new battery.
- 7) Replace and lock cover.
- 8) Connect external devices and restore power.
- 9) Run BIOS Setup utility to reconfigure computer using recorded configuration settings from step 1.



**Figure 3 - 16**  
**Replacing the**  
**Computers Battery**

## Connecting Diskette and IDE Devices

To connect diskette and IDE devices, perform the following:

- 1) Connect supplied ribbon cable to appropriate device as shown.  
Make sure cable is connected with correct orientation. Most cables and sockets are keyed so they cannot be connected backwards. If the cable or device is not keyed, connect pin 1 of cable to pin 1 of device's socket. Pin 1 of cable is on edge with colored stripe. Pin 1 of device's socket should be marked with an arrow at one end of socket. If necessary, refer to the device's documentation for pin 1 orientation.
- 2) Connect appropriate power cable to device.
- 3) Replace and lock side panel.
- 4) Connect external devices and restore power.
- 5) Run BIOS Setup Utility to configure the computer.

---

**NOTE** If only one IDE device is installed, make sure to use the ribbon cable connector furthest from the Main Logic Board. Also, if IDE devices are installed in both internal drive bays, make sure device's control/data connectors directly face each other.

---

Connecting Diskette and IDE Devices (continued)

<i>Figure Legend</i>	<i>Component</i>
A	Power Supply
B	Power Connections
C	Diskette Drive Connection
D	IDE Drive Connection
E	Diskette Drive
F	Hard Disk Drive
G	Optional Storage Devices

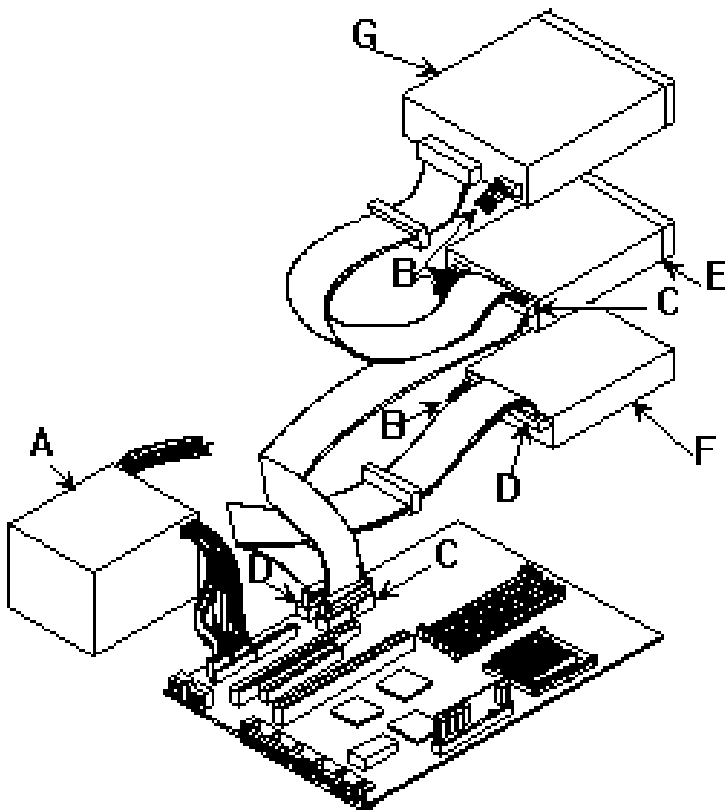


Figure 3 - 17 Connecting diskette and IDE devices

## Chapter 4

## Troubleshooting

The following pages provide initial troubleshooting procedures and tables listing specific problems, probable causes, and recommended actions to take if the computer fails after configuring it or after installing optional hardware or software.

Refer to the documentation supplied with additional options when experiencing problems with specific options that have been installed.

### Initial Troubleshooting

Follow the general procedure below to troubleshoot the Venturis 400, FP400 and 560 computer:

- 1) Press [**Ctrl**] + [**Alt**] + [**Del**]. If the computer fails to boot, turn it off, wait until all hard disk drives are spun down completely, and then turn it back on.
- 2) If the POST detects an error refer to “*Troubleshooting*” and take the appropriate steps to correct the problem. After the problem has been resolved, restart the computer.
- 3) Run the BIOS Setup utility.
- 4) Make sure all necessary changes have been made to the CONFIG.SYS and AUTOEXEC.BAT files.
- 5) Make sure all necessary video, printer, and application device drivers are properly installed.
- 6) Ensure that all cables and connections are secure.
- 7) Run the *QAPLUS/fe* advanced diagnostic software.
- 8) If these steps do not identify and/or correct the problem, perform the specific troubleshooting procedures appropriate to the circumstances.

---

**NOTE** If you need to return a failed component, pack it in its original container and return it to Digital for service.

---

**Fill in the appropriate fields of the Part Exchange Form with the relevant error information!!**

## Beep Codes

When POST finds an error and cannot display a message, the computer's speaker emits a series of beeps to indicate the error. During POST, if the video configuration fails or if an external ROM module fails a checksum test, then the computer beeps three times (one long beep, and two short beeps).

The following table lists other fatal errors and their associated beep codes. Each code represents the number of short beeps that are grouped together. Fatal errors (errors that lock up the computer) are generally the result of a failed main logic board or some other add-on component (SIMM, BIOS, computer battery, etc.).

**Each code represents the number of short beeps that are grouped together.**

<i>Beep Code</i>	<i>Error Message</i>
1- 2	Video failure or configuration error
2-2-3	BIOS ROM checksum
3-1-1	Test DRAM refresh
3-1-3	Test keyboard controller
3-4-1	Test 512K base address lines
3-4-3	Test 512K base memory
2-1-2-3	Check ROM copyright notice
2-2-3-1	Test for unexpected interrupts

## POST and Boot Messages

The POST displays messages to alert to errors in hardware, software, and firmware or to provide operating information about the computer.

Each time the POST displays a message on screen, the computer's speaker beeps twice. If an error occurs before the monitor is initialized, specific beep codes sound to alert to a problem.

### POST and Boot Error Messages

The following error messages are arranged in alphabetical order.

---

**NOTE**     *Italics* indicate variable parts of a message such as memory addresses, hexadecimal values and so on. These messages can differ at each occurrence.

---

**POST and Boot Error Messages** (continued)

<b>Message</b>	<b>Description/Solution</b>
<b>nnnn Cache SRAM Passed</b>	Where <i>nnnn</i> is the amount of computer cache (in kilobytes) that tested successfully.
<b>Diskette drive A error Diskette drive B error</b>	Run the BIOS SETUP UTILITY. Check all connections. If the problem persists-replace the diskette drive.
<b>Entering SETUP</b>	BIOS SETUP UTILITY runs.
<b>Extended RAM Failed at offset: nnnn</b>	Extended memory failed or has been configured incorrectly. Make sure SIMMs are installed correctly. If the problem persists replace the defective RAM. Run the BIOS Setup utility and restore all settings to original values.
<b>nnnn Extended RAM Passed</b>	Where <i>nnnn</i> is the amount of extended memory (in kilobytes) that tested successfully.
<b>Failing Bits: nnnn</b>	<i>nnnn</i> is a map of the bits at the RAM address which failed the memory test. Run the BIOS SETUP UTILITY and restore all settings to original values.
<b>Fixed Disk 1 Failure Fixed Disk Controller failure</b>	Run the BIOS SETUP UTILITY. Check all connections.
<b>Incorrect Drive A type - run SETUP</b>	Diskette drive A and/or B not correctly identified in the BIOS Setup utility.
<b>Incorrect Drive B type - run SETUP</b>	Run the BIOS SETUP UTILITY and properly identify diskette drive A and/or B.
<b>Invalid NVRAM media type</b>	NVRAM access failed. Run the BIOS SETUP UTILITY and restore all settings to original values. If the problem persists replace the defective component.
<b>Keyboard controller error Keyboard error Keyboard locked - Unlock key switch</b>	Check the keyboard connection. If the connection is secure, the keyboard or keyboard controller might have failed. If the problem persists replace the defective component.
<b>Monitor type does not match CMOS - Run SETUP</b>	Run the BIOS Setup utility and set the correct monitor type.
<b>Operating system not found</b>	The operating system cannot be found on drive A or drive C. Run the BIOS SETUP UTILITY and correctly identify drive A or drive C. Correctly install the operating system. Refer to the supplied operating system documentation.
<b>Parity check 1 nnnn</b>	Parity error found in the computer bus. The BIOS attempts to locate the address and to display it on the monitor screen.
<b>Parity check 2 nnnn</b>	Run the BIOS SETUP UTILITY and restore all settings to original values.
<b>Press &lt;F1&gt; to resume, &lt;F2&gt; to Setup</b>	This message appears after any recoverable error message. Press <F1> to reboot or <F2> to enter the BIOS Setup utility to make any necessary changes.



**POST and Boot Error Messages** (continued)

<b>Message</b>	<b>Description/Solution</b>
<b>Real time clock error</b>	Real-time clock failed BIOS test. Replace the battery and run the BIOS SETUP UTILITY to restore previous configuration information.
<b>Shadow RAM Failed at offset: <i>nnnn</i></b>	Shadow RAM failed. Run the BIOS SETUP UTILITY and disable failed shadow memory region.
<b><i>nnnn</i> Shadow RAM passed</b>	Where <i>nnnn</i> is the amount of shadow RAM (in kilobytes) that tested successfully.
<b>System battery is dead Replace and run SETUP</b>	Replace the battery and then run the BIOS Setup utility to restore previous configuration information.
<b>System BIOS shadowed</b>	This indicates that the computers BIOS was successfully copied to shadow RAM.
<b>System cache error - Cache disabled</b>	RAM cache failed. Run the BIOS SETUP UTILITY and restore all settings to original values. If the problem persists replace the defective component.
<b>System CMOS checksum bad - run SETUP</b>	Run the BIOS SETUP UTILITY and ensure that all settings are correct. Save the configuration even when no changes have been made. If the problem persists replace the defective component.
<b>System RAM failed at offset: <i>nnnn</i></b>	System RAM failed. Run the BIOS SETUP UTILITY and restore all settings to original values. If the problem persists replace the defective component.
<b><i>nnnn</i> System RAM passed</b>	Where <i>nnnn</i> is the amount of system RAM (in kilobytes) that tested successfully.
<b>System timer error</b>	The computers timer test failed. Run the BIOS SETUP UTILITY and restore all settings to original values. If the problem persists replace the defective component.
<b>UMB upper limit segment address: <i>nnnn</i></b>	Displays the address of the upper limit of UMB. This indicates the released segments of the BIOS that can be reclaimed by a virtual memory manager.
<b>Video BIOS shadowed</b>	This indicates that the computers video BIOS was successfully copied to shadow RAM.

## Computer Troubleshooting

<b>Problem</b>	<b>Possible Cause</b>	<b>Action</b>
<b>No response when the computer is turned on</b>	Main logic board failure.	Replace main logic board.
	Main logic board jumpers incorrectly set.	Set all appropriate jumpers (Refer to “ <i>Main logic board jumpers</i> ”).
	CPU has failed.	Replace CPU.
<b>Power is on, but there is no screen display</b>	Brightness and contrast controls are not correctly set.	Adjust the brightness and contrast controls.
	The monitor-off timer has shut the monitor off.	Press [Shift] to reactivate monitor.
	Monitor cable is incorrectly installed.	Check all monitor connections.
	Incorrect VGA drivers installed.	Install the correct VGA drivers.
	Video controller has failed.	Replace the video controller.
<b>Computer operates incorrectly after installing optional expansion board</b>	Expansion board installed incorrectly.	Remove expansion board and reinstall.
	Did not run ICU to configure expansion board before installation.	Run the ICU to properly configure expansion board and then reboot the computer. Refer to the supplied ICU documentation.
	Expansion board has failed.	Remove expansion board and reboot. If computer boots without errors, replace expansion board.
<b>Computer operates incorrectly after installing optional SIMMs</b>	SIMMs installed incorrectly.	Remove SIMMs and reinstall.
	Did not rerun BIOS Setup utility.	Rerun BIOS Setup utility.
	BIOS Setup utility changes not saved before exiting.	Rerun BIOS Setup utility and save changes.
	SIMMs have failed.	Remove SIMMs and reinstall. Make sure bank 0 is filled with the correct SIMM size, speed, and type. Replace SIMMs.
<b>Computer operates incorrectly after installing optional external cache module</b>	External cache module installed incorrectly.	Remove external cache module and reinstall.
	External cache module has failed.	Replace external cache module.

**Computer Troubleshooting** (continued)

<b>Problem</b>	<b>Possible Cause</b>	<b>Action</b>
<b>Computer fails to retain setup information</b>	Computer battery has failed.	Replace computer battery.
<b>Computer does not boot from an IDE hard disk drive</b>	Operating system software is not installed on the IDE hard disk drive.  IDE hard disk drive is not correctly formatted or the requested partition does not exist.  There is no software on the requested partition.  IDE hard disk drive jumpers incorrectly set.  IDE drive type incorrect.  Loose cables.  Onboard IDE interface disabled.  IDE hard disk is connected to the wrong IDE connector.  There might be a boot sector virus.  Hard disk boot sector is missing.	Install the appropriate operating system.  Format the IDE hard disk drive or partition the IDE hard disk drive using the supplied operating system software.  Install software on the requested partition.  Refer to the supplied IDE hard disk drive kit installation instructions.  Run the BIOS Setup utility to identify the correct drive type.  Secure all cable connections.  Run the BIOS Setup utility and set the IDE controller option to "Enabled".  Connect the boot disk to the inner IDE connector on the main logic board.  Run appropriate software to detect and remove viruses (F-PROT).  For DOS, boot from a DOS diskette then enter the following commands:  <b>c: cd\dos fdisk/mbr</b>
<b>No response to keyboard commands</b>	Keyboard is password protected.  Keyboard is connected to the mouse port.	Enter the keyboard password.  Power down the computer and connect the keyboard to the keyboard port.
<b>No response to mouse commands</b>	Mouse is password protected.  Mouse is connected to the keyboard port.  Mouse driver not installed.	Enter the keyboard and mouse password.  Power down the computer and connect the mouse to the mouse port.  Install the appropriate mouse driver.

**Computer Troubleshooting** (continued)

<b>Problem</b>	<b>Possible Cause</b>	<b>Action</b>
<b>Computer does not recognize an internal or external SCSI device</b>	SCSI device jumpers incorrectly set.	Refer to the supplied SCSI device kit installation instructions.
	SCSI cable not terminated.	Terminate each end of the SCSI bus.
	SCSI device not plugged in.	Check power and SCSI cables.
	Terminating resistors not removed from the SCSI device.	Remove terminating resistors.
	SCSI adapter failure.	Replace SCSI adapter.
	SCSI ID conflicts.	Set SCSI IDs correct.
<b>Computer does not boot from an internal SCSI hard disk drive</b>	Operating system software is not installed on the SCSI hard disk drive.	Install the appropriate operating system on the SCSI hard disk drive.
	Requested partition does not exist.	Partition the SCSI hard disk drive and then reload the operating software.
	Computer not configured for SCSI hard disk drive operation.	Run the BIOS Setup utility and set the IDE controller option to "Disabled". This disables the IDE interface. Note: When both IDE and SCSI hard disk drives have been installed, the computer uses the IDE hard disk drive as the boot device.
<b>Computer does not boot from a target diskette drive</b>	Drive ID incorrectly set.	Make sure the drive ID is correctly set.
	Diskette drive not enabled.	Run the BIOS Setup utility to enable the diskette drive.
	Diskette boot option disabled.	Run the BIOS Setup utility and set and set the proper boot sequence.
	Onboard diskette controller disabled.	Run the BIOS Setup utility and set the diskette controller option to "Enabled".
	Diskette does not contain start-up files.	Insert a diskette with the correct start-up files.

## Disk Drive Troubleshooting

<b><i>Problem</i></b>	<b><i>Possible Cause</i></b>	<b><i>Action</i></b>
<b>IDE/SCSI hard disk drive cannot read or write information</b>	Incorrect disk drive jumper settings.	Refer to the supplied kit installation instructions.
	Loose or incorrectly installed cables	Make sure all cables are correctly installed.
	IDE drive type incorrect.	Run the BIOS Setup utility to identify the correct drive type.
	Onboard IDE interface disabled.	Run the BIOS Setup utility and set the IDE controller option to "Enabled".
	IDE/SCSI hard disk drive is not correctly formatted or partitioned.	Format and partition as required using the supplied operating system.
<b>Target diskette drive cannot read or write information</b>	Onboard diskette controller disabled.	Run the BIOS Setup utility and set the diskette controller to "Enabled".
	Diskette write protection is enabled.	Run the BIOS Setup utility and set the diskette write protection to "Disabled".

### Monitor Troubleshooting

<b>Problem</b>	<b>Possible Cause</b>	<b>Action</b>
<b>Monitor power indicator is not on</b>	Monitor is turned off.	Turn on the monitor.
	No power at wall outlet.	Use another outlet.
	Power indicator is defective.	Replace the failed component.
<b>No screen display</b>	Configuration error.	Run the BIOS SETUP UTILITY to configure the computer for VGA operation. Set the jumper for VGA operation. Refer to "Main Logic Board Jumpers".
	Monitor brightness and contrast controls are incorrectly set.	Adjust the monitor brightness and contrast controls.
<b>No monitor display while loading Windows video drivers</b>	Monitor type incorrectly set.	Set the correct monitor type. Refer to appropriate video driver documentation.
<b>Distorted-rolling-or flickering screen display-or wrong/uneven color</b>	Monitor incorrectly adjusted.	Adjust accordingly.
	Monitor signal cable incorrectly installed.	Straighten any bent connector pins and then reconnect.
<b>Color monitor displaying monochrome</b>	Computer was turned on before the monitor was turned on.	Turn off the computer, then turn the computer back on.
	Video jumper incorrectly set.	Set the jumper for VGA operation.
<b>Monitor fails to switch to high-resolution mode</b>	Appropriate high-resolution video drivers are not installed or incorrectly installed.	Correctly install all appropriate high-resolution video drivers. Refer to the documentation supplied with the monitor and/or video drivers.
<b>Monitor display not centered while loading Windows video drivers</b>	Monitor type incorrectly set.	Set the correct monitor type. Refer to appropriate video driver documentation.

**QAPLus/FE Error Messages**

<b>Component</b>	<b>Messages</b>	<b>Solution</b>
<b>CPU</b>	Arithmetic Function Failed. General Functions Failed. Exception Interrupt in Protected Mode. Refresh Failure. Logic Functions Failed.	Reset CPU. Replace CPU.
<b>Hard disk</b>	Butterfly Cylinder Access Test Failed. Cylinder 0 Errors. Random Cylinder Access Failed. Linear Cylinder Access Failed.	Low-level format hard disk. Replace disk.
<b>Hard drive/controller</b>	Controller Diagnostic Test Failed. Questionable Controller Card. Hard drives failed.	Run Setup, Check connections, Reset controller, Replace controller, Replace disk.
<b>Floppy diskette</b>	Media Mismatch.  Drive Not Ready.  Write Protected Media.  Unformatted Media.	Use known good diskette. Check size and density of diskette.  Close drive door.  Remove write protection.  Format diskette.
<b>Floppy drive</b>	Floppy Drives Failed.	Check connections. Replace drive.
<b>Battery/clock</b>	Clock Stopped. Invalid Date. RTC Interrupt Failed.	Run Setup. Replace battery/clock.
<b>CMOS</b>	CMOS Clock Test Failed.	Change time from Setup menu in QAPLUS.
<b>Serial port</b>	COM port failed.  Serial Chip Error.  Serial Compare Error.  Serial Timeout Error.	Check COM device.  Check connections.  Replace COM device.  Replace COM device.
<b>Video adapter</b>	Video Failed.  Error in Video Buffer.	Replace video adapter.  Replace video adapter.

# Chapter 5

# Device Mapping

This section provides a series of tables listing mapping and address information related to computer memory and various main logic board devices (keyboard controller, interrupt controller, DMA controller, etc.).

The computer's memory and address locations are allocated at the factory to operate within a standard PC environment. However, due to the number of optional devices and/or expansion boards that are available, sometimes memory and address locations need to be changed. For example, some network expansion boards require a specific memory location. If that location is already allocated, a memory conflict results and the expansion board will not operate as expected. Note that some memory, I/O and interrupt locations can be changed using the BIOS Setup utility.



**CAUTION**

Before changing any memory or address location, refer to the documentation supplied with the optional device, expansion board, or software application and make sure adequate information is available.

## CPU Memory Address Map (Full Range)

<i>Range</i>	<i>Function</i>	<i>Notes</i>
<b>0 KB to 512 KB</b>	Main memory	PC compatibility range
<b>512 KB to 1024 KB</b>	Main memory	PC compatibility range (ISA memory lower limit)
<b>1 MB to 16 MB</b>	Main memory Memory space gap	ISA memory upper limit
<b>16 MB to 128 MB</b>	Main memory	Computer memory upper limit
<b>128 MB to 4 GB</b>	PCI memory	



**CPU Memory Address Map (PC Compatibility Range)**

<i>Address Range</i>	<i>Size</i>	<i>Function</i>
<b>0000 to 7FFFF</b>	512 KB	Main memory
<b>80000 to 9FFFF</b>	128 KB	Main/PCI/ISA memory
<b>A0000 to BFFFF</b>	128 KB	PCI/ISA video buffer memory
<b>C0000 to C7FFF</b>	32 KB	Video memory BIOS
<b>C8000 to DFFFF</b>	96 KB	PCI/ISA card BIOS and buffer memory
<b>E0000 to EBFFF</b>	64 KB	ISA/PCI adapter RAM after POST Used by BIOS Setup during POST
<b>F0000 to FFFFF</b>	64 KB	Planar BIOS memory

**CPU I/O Address Map**

<i>Range (hex)</i>	<i>Function</i>
<b>0000 to 0CF7</b>	PCI I/O space
<b>0CF8</b>	Configuration space enable registers
<b>0CF9</b>	Turbo and reset control register
<b>0CFA to BFFF</b>	PCI I/O space
<b>C000 to CFFF</b>	PCI configuration space
<b>D000 to FFFF</b>	PCI I/O space

**I/O Address Map**

<i>Range (hex)</i>	<i>Function</i>
<b>060 - 064</b>	Keyboard / Mousecontroller
<b>0F0 - 0FF</b>	Math coprocessor
<b>1F0 - 1F7</b>	IDE controller
<b>278 - 27F</b>	LPT2
<b>2F8 - 2FF</b>	COM2
<b>378 - 37F</b>	LPT1
<b>3BC - 3BE</b>	LPT3
<b>3F0 - 3F7</b>	Diskette controller
<b>3F8 - 3FF</b>	COM1

## Computer Interrupt Levels

<i>Interrupt Number</i>	<i>Interrupt Source</i>
<b>IRQ1</b>	Keyboard controller
<b>IRQ3</b>	COM2 (if enabled)
<b>IRQ4</b>	COM1 (if enabled)
<b>IRQ6</b>	Diskette drive (if enabled)
<b>IRQ7</b>	LPT1, LPT2, LPT3 (if enabled)
<b>IRQ12</b>	Mouse interrupt (if enabled)
<b>IRQ13</b>	Math co-processor
<b>IRQ14</b>	Hard Disk Drive (if enabled)

## DMA Channel Assignment

<i>Channel</i>	<i>Controller</i>	<i>Function</i>
<b>0</b>	<b>1</b>	Refresh
<b>1</b>	<b>1</b>	Not used
<b>2</b>	<b>1</b>	Diskette controller (if enabled)
<b>3</b>	<b>1</b>	Not used
<b>4</b>	<b>2</b>	Cascade DMA
<b>5</b>	<b>2</b>	Not used
<b>6</b>	<b>2</b>	Not used
<b>7</b>	<b>2</b>	Not used

## PCI Configure Space Address Map

<i>Range (hex)</i>	<i>Function</i>
<b>C0xx</b>	CPU bridge
<b>C1xx</b>	Not used
<b>C2xx</b>	ISA bridge
<b>C6xx</b>	PCI slot 1
<b>C7xx</b>	PCI slot 2

## Chapter 6

## Pass / Fail Criteria

As Final Acceptance Test the following tests should be run to meet the Pass/Fail criteria:

- 1) **Successful completion of the POST tests.**
- 2) **Successful completion of the following QAPLUS/fe module tests (one pass):**
  - ◆ System Board (all tests)
  - ◆ Memory (all tests)
  - ◆ Video (all tests)
  - ◆ Hard Disk (all tests, **except: Sequential write/read (destructive test !!) and Sequential write/random read (destructive test !!)**)
  - ◆ Floppy Disk (all tests)
  - ◆ Keyboard (all tests)
  - ◆ COM Ports (all tests)
  - ◆ LPT Ports (all tests)
  - ◆ Pointer Device (all tests)
- 3) **Successful bootstrap of the on the computer installed Operating System.**
  - Operating Systems Supported:
    - ◇ MS-DOS version 6.22 and earlier
    - ◇ OS/2 version 3.0 and earlier
    - ◇ SCO UNIX System V relaes 3.2.4 and earlier
    - ◇ Windows 95
    - ◇ Windows for Workgroups 3.11 and earlier
    - ◇ Windows NT Client
    - ◇ Windows NT Server
    - ◇ Novell Netware 3.11 and 4.1 and earlier
    - ◇ SCO ODT

Remove any software that was put on the hard drive to enable repair of the system before shipping.

When completed carefully clean the outside of the unit with cleaning solution.

# Appendix A

# Service Notes

## Service Note 1

<b>Problem:</b>	On all IDE Hard Disk Drives error on boot data corruption and loss of data.
<b>Solution:</b>	Make sure that the drive is set up correctly as follows.

### *Fixed Disk Setup*

as per drive spec	Drive type
as per drive spec	Cylinders
as per drive spec	Heads
as per drive spec	Sectors/track
as per drive spec	Landing zone
0	Write precomp
8	Multi-sector transfers
disabled/enabled	LBA (set to enabled if using an IDE drive greater than 525Mb)
enabled	32 bit I/O
PIO3	Transfer mode
enabled	Read ahead mode
Large Disk Access	Set to DOS if using a FAT16 partition or OTHER if not

## Service Note 2

<b>Problem:</b>	FDD fails to read or write to floppy disks. Is setup correctly under the CMOS.
<b>Solution:</b>	Sometimes this is caused by security settings either software or hardware. Make sure that security under the CMOS is disabled. If this does not work change the Diskette Access setting under security in the CMOS.

## Recommended Tools

The following tools will be needed for servicing Digital PC systems. Note that test equipment must be in calibration.

- ◆ Multimeter (4 1/2 digit)
- ◆ A philips screwdriver
- ◆ An antistatic wrist strap

## Other Needed Materials

Cleaning agent should be an all purpose cleaner that is used in-house.

## Required Special Tools.

None.

## Remedial Diagnostic Test Software.

- ◆ *QAPLUS/fe* , PC Advanced Diagnostic Software, latest version.  
*Partnumber : 22-00908-06*

## Recommended Virus Detection and Cleanup Software

- ◆ *F-PROT*, Virus Detection and Cleanup Software, latest version.

### Network locations:

North America, South America, Australia and New Zealand:  
*MINOTR::USER6:[VIRUS.F-PROT]*

Europe, Africa, Middle and Far East:  
*VARDAF::EUROPUB:[VIRUS\_SCANNER.F-PROT]*

## ECO/FCO Information.

## BIOS version information.

Refer to the Digital DECpc Bulletin Board Support , for the latest information on BIOS upgrades

### Network locations:

North America, South America, Australia and New Zealand:  
*PCBUHD::DKB300:[WC30.BBSFILES]*

Europe, Africa, Middle and Far East:



## Appendix B

## Useful Information

## Related Documentation

<b>Order Number</b>	<b>Description.</b>
EK-A0832-RG	CELEBRIS 466 Quick reference Guide
EK-A0815-SV	Service Maintenance Manual Spares Catalogue
ER-820WW-IA	CELEBRIS 466/4100 Quick Setup Guide (English)
ER-820WW-IG	CELEBRIS 466/4100 Quick Setup Guide (German)
ER-820WW-ID	CELEBRIS 466/4100 Quick Setup Guide (Dutch)
ER-820WW-II	CELEBRIS 466/4100 Quick Setup Guide (Italian)
ER-820WW-IS	CELEBRIS 466/4100 Quick Setup Guide (Spanish)
ER-820WW-IP	CELEBRIS 466/4100 Quick Setup Guide (French)
ER-810WW-UA	CELEBRIS 466/4100 User's Guide (English)
ER-810WW-UP	CELEBRIS 466/4100 User's Guide (French)
ER-810WW-UD	CELEBRIS 466/4100 User's Guide (Dutch)
ER-810WW-UI	CELEBRIS 466/4100 User's Guide (Italian)
ER-810WW-UG	CELEBRIS 466/4100 User's Guide (German)
ER-810WW-US	CELEBRIS 466/4100 User's Guide (Spanish)
ER-76HEA-UA	805 VGA Users Guide (English)
ER-76HEA-UM	805 VGA Users Guide (Multi-Lingual)
ER-XAGAL-UA	864 VGA Users Guide (English)
ER-XAGAL-UM	864 VGA Users Guide (Multi-Lingual)
ER-76HEB-UA	928 VGA Users Guide (English)
ER-76HEM-UM	928 VGA Users Guide (Multi-Lingual)

## On-Line Bulletin Boards

The most current product information and technical support is also available on line. The most current device drivers, Setup diskettes and technical tips can be found on all of these bulletin boards.

- ◆ ***DECpc Bulletin Board Server***  
DECpc BBS provides an easy-to-use, menu-driven bulletin board providing on-line access to the latest PC product information, device drivers, shareware and freeware.  
For access to the DECpc BBS, dial: **xx33 9260312**
- ◆ ***CompuServe***  
Digital hosts a number of conferences on CompuServe featuring a wide range of topics.  
Enter **GO DEC** to reach Digital's main menu page.  
For information on PC integration, enter: **GO DEC PC**



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