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VIPer-830

Celeron-Based Industrial SBC

Technical Reference Manual
Version 1.4, February 2003

Note: The latest releases of the Technical Reference Manuals are available at:
ftp://ftp.kontron.ca/support/Product_manuals/



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Ref. : M830_TECH (Board Rev. 2)

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DOCUMENTATION SURVEY

VIPer 830 – Celeron-Based Industrial SBC
Technical Reference Manual, Rev. 1.4

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ADDITIONAL COMMENTS

WARNING

Danger of explosion when replacing with wrong type of battery. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le fabriquant. Mettre au rebut les batteries usagées conformément aux instructions du fabriquant.

ACHTUNG

Explosions gefahr bei falschem batteriewechsel. Verwenden sie nur die empfohlenen batterietypen des herstellers. Entsorgen sie die verbrauchten batterien laut gebrauchs anweisung des herstellers.

ATENCION

Puede explotar si la pila no este bien reemplazada. Solo reemplazca la pila con tipas equivalentes segun las instrucciones del manifacturo. Vote las pilas usadas segun las instrucciones del manifacturo

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PART 1

PRODUCT DESCRIPTION

1. PRODUCT OVERVIEW

2. JUMPER SETTINGS

3. FEATURE DESCRIPTION

1. PRODUCT OVERVIEW

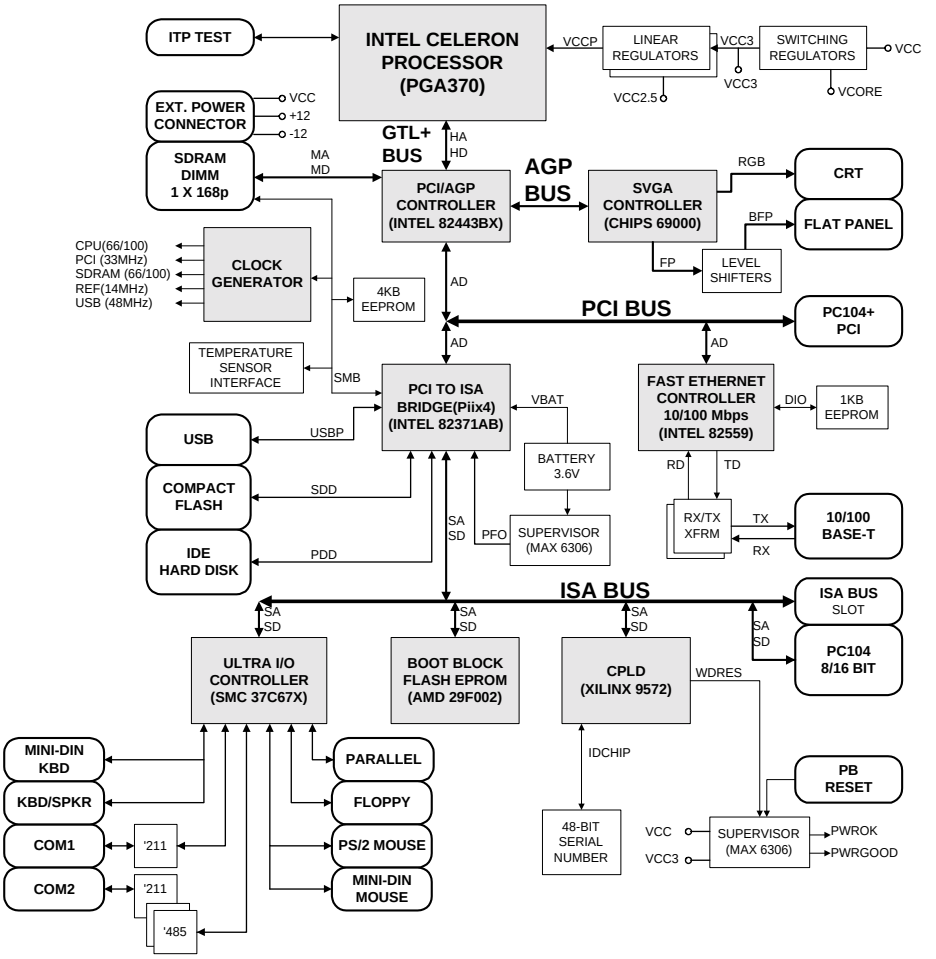
1.1. DESCRIPTION

The VIPer830 is a half size PC/AT form factor industrial Single Board Computer (SBC) based on the Intel Celeron processor running at 66MHz Front Side Bus (FSB) speed. Future processors at 100MHz FSB will also be supported.

While maintaining the ISA compatibility, the VIPer830 is also capable of driving PCI slots. Using the PCI section of the onboard PC/104-Plus connector as an expansion header, an adapter module can fit to provide the SBC two edge connectors side by side. ISA is the first and PCI is the second. This configuration makes the board capable of driving both ISA and PCI standard expansion boards through a standard passive ISA backplane or a backplane that combines both PCI and ISA slots (VIPci 960).

The VIPer830 can also be used without a backplane, as a stand-alone computer. In such a case, it is powered through the external power connector and expansion is possible through the PC/104-Plus connector.

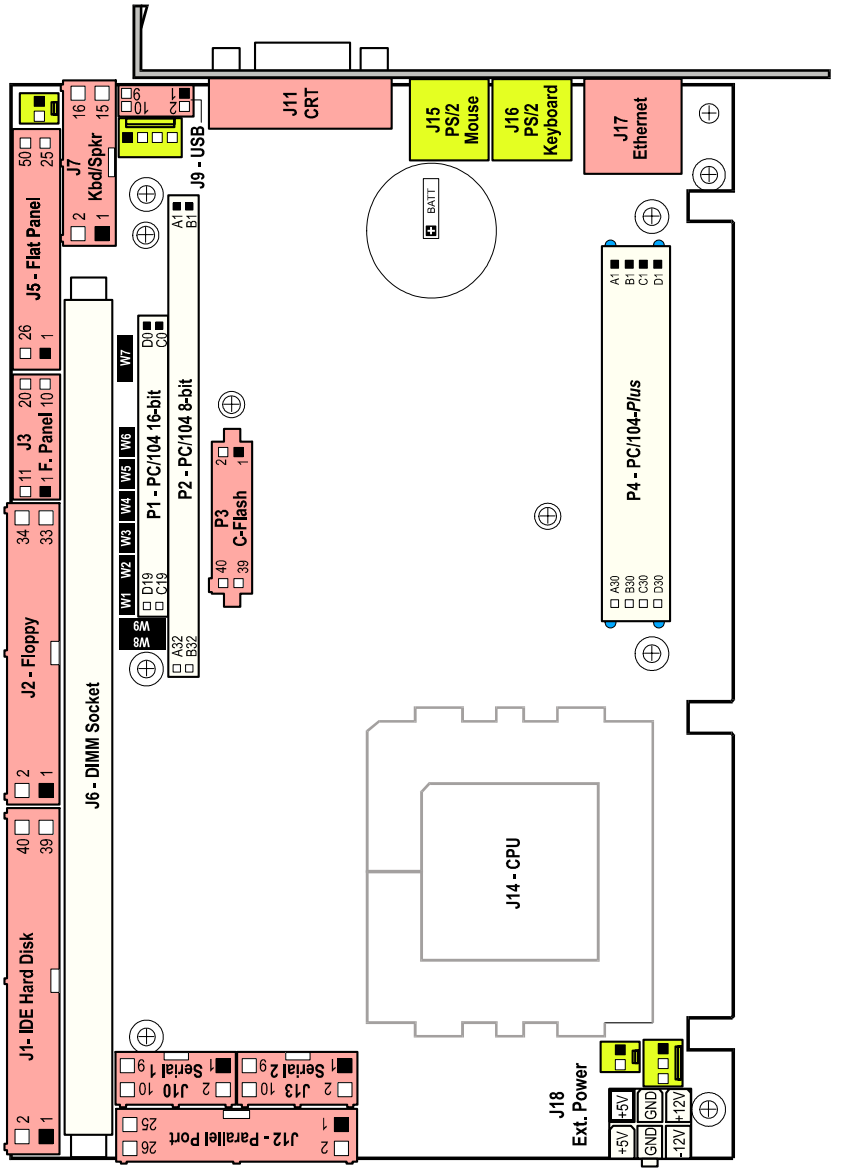
1.2. VIPer830 – BLOCK DIAGRAM



The major features are summarized below:

- **Microprocessor Support:** Celeron from Intel (PGA370).
- **66MHz** Front Side Bus and SDRAM bus (processors at 100MHz FSB will also be supported).
- **External Cache:** 128KB of L2 Pipelined burst cache (internal to the CPU).
- **System Memory:** up to 256MB of Synchronous DRAM (SDRAM), or 256MB of SDRAM on one 168-pin DIMM sockets.
- **CompactFlash Disk:** connects directly on the Secondary IDE interface with the proper adapter module.
- **PC/104-Plus Connector:** makes the board capable of driving PCI boards (requires the T076 module and the VIPci 960 backplane).
- **Universal Serial Bus (USB):** Supports two USB ports.
- **Video:** Integrated AGP 64-bit CRT/Flat panel video controller with 2MB on-chip SDRAM video memory (Intel 69000).
- **Fast Ethernet Controller:** Supports 10/100Base-TX Ethernet interface (Intel 82559).
- **Operating Systems:** Supports all OS developed for x86 and Pentium processors.
- **Boot Block Flash BIOS:** 256KB device. Protected boot block section with reprogramming capability.

VIPer830 – Connector and Jumper Location



2. JUMPER SETTINGS

NAME	FUNCTION	CONFIGURATION (INITIAL SETTING: *)
W1	CPU Bus Speed	

W1 - CPU Bus Speed	
66/100 MHz * (selected by CPU)	off
66 MHz	on

Careful attention should be taken when installing a processor:
Faulty jumper settings can damage both your processor and your board.

W2	Onboard Video	

W2 - AGP	
Enabled *	off
Disabled	on

W3, W4	Serial Port 2 Termination	

W3, W4 - Serial Port 2 Termination		
	W3	W4
RS-485 with Termination	on	on
RS-485 without Termination *	off	off

No Termination required in RS-232 mode

W5	VT-100	

W5 - VT-100	
Disabled *	off
Enabled	on

W6	INTA to Video Controller	

W6 - INTA to Video Controller	
Enabled	on
Disabled *	off

W7	Flat Panel Voltage Level	

W7 - Flat Panel Voltage Level	
5V signal level *	1-2
3.3V signal level	2-3

This jumper does not select flat panel power supply

W8	Battery	

W8 - Battery	
Onboard Battery	1-2
External Battery *	2-3
Battery Disconnected	off

There is a danger of explosion if the battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions .

W9	Power Failure Monitoring	

W9 - Power Failure Monitoring	
Onboard Battery *	2-3
External Battery	1-2

3. FEATURE DESCRIPTION

Each feature of the VIPer 830 is described in the following sections.

SETUPS

Related Jumpers

To configure the board for another processor, use:

W1 jumper to setup the CPU bus speed

If required, the CPU Bus speed can be forced to 66MHz. Default setup provides automatic detection of 66/100MHz bus speed.

Jumper settings are described in the previous Section – *Setting Jumpers*.

BIOS Level

To enable or disable the CPU internal cache, run the BIOS Setup program, *BIOS Features* option.

MAKING CONNECTIONS

The processor installs in the U14 socket. Insert carefully the processor into its socket, and make sure to match the beveled corner of the chip surface with the corresponding marking of the processor socket. Use a "chip-puller" or thin screwdriver to remove the processor.

The +5V fan power supply is provided on the **J19** header.

MORE ...

Processors supported by the VIPer830 are specified as follows (under DOS):

	V Core	Normal	Doze	Standby	Suspend
Celeron 300MHz	2.0V	3.80A	2.31A	2.20A	1.69A
Celeron 366MHz	2.0V	4.14A	2.43A	2.35A	1.74A
Celeron 433MHz	2.0V	4.38A	2.50A	2.42A	1.75A

:

3.2. CPU/SYSTEM CORE - MEMORY

One vertical DIMM socket (168 pins) is provided to support from 8MB to 256MB of SDRAM system memory.

SETUPS

Related Jumpers

No jumper setting is required.

BIOS Level

Options to setup the system memory are provided by the BIOS Setup program, *Chipset Features* option.

MAKING CONNECTIONS

The memory module must be installed in the J6 socket.

1Mx64/72, 2Mx64/72, 4Mx64/72, 8Mx64/72, 16Mx64/72 and 32Mx64/72 type memory are supported

MORE ...

The system memory must conform to the following:

. PC-100 standard, 66MHz, 3V, single-sided or double-sided DIMM

. ECC is supported

3.3. CPU/SYSTEM CORE - BATTERY

The board is installed with a 3.6V, 370mAh lithium battery (22.5x5.6mm, wafer form

SETUPS

Related Jumpers

To enable onboard CMOS backup, connect the battery to the board's circuitry by setting the **W8** jumper to 1-2 position (onboard Battery).

Jumper settings are described in the previous Section – *Setting Jumpers*.

BIOS Level

No BIOS setup is required.

MAKING CONNECTIONS

Initially, the board is shipped with the battery jumper set so as the battery is disconnected from the board circuitry: **W8** in position 2-3 (External Battery).

When operating with the board for the first time, the jumper must be installed in position 1-2.

When setting the board for an external battery the external voltage source must be applied to the pin 1 (or 3) of the J20 External Battery header, and the W8 jumper must be installed in position 2-3.

MORE ...

The internal or external battery can be supervised through the onboard Power Fail Detection function (battery voltage drops below 3.08V) using the **W9** Power Failure Monitoring jumper.

For more information on the Power Fail Detection function please refer to the previous Section - *Jumper Settings* and the *Supervisory Feature* described in this Section.

3.4. ETHERNET INTERFACE

The 10Base-T/100Base-TX Ethernet interface controller (Intel 82559) resides on the PCI bus and is therefore Plug and Play by default. It is assigned with one PCI master REQ/GNT pair.

SETUPS

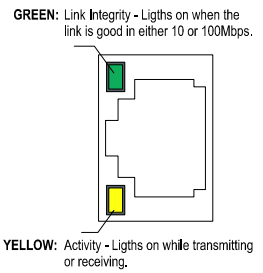
Related Jumpers

No jumper setting is required.

BIOS Level

The onboard Ethernet controller can be enabled/disabled through the BIOS Setup Program, *Integrated Peripherals* option.

MAKING CONNECTIONS



The communication link plugs into the J17 RJ-45 connector located on the edge bracket.

10Mbps or 100Mbps network speed is automatically detected and switched.

Link and Activity LEDs (respectively green and yellow) are built on the connector.

The 10Base-T uses UTP (Unshield Twisted Pair) cables, category 3, 4 or 5 (5 is better).

The 100Base-TX uses UTP cable category 5 that must comply with the IEEE 802.3 10Base-T standard for two pairs.

MORE ...

The network driver is contained on the diskette referred to as *Intel 82S558/559, Fast Ethernet Pro 100 / PCI*. For instructions on the installation of the network driver, please refer to the READ_NET.TXT (ASCII) or READ_NET.DOC (Word 6.0) file.

Once the proper Ethernet driver is installed, the onboard PnP BIOS and the driver automatically allocate resources – I/O addresses, IRQ and DMA channels.

3.5. I/O DEVICES – I/O CONNECTIONS

Standard AT keyboard, speaker port, reset button and hard disk LED signals are issued on the J15 Multi-Function header. A flat cable is provided with the board for connecting the

SETUPS

Related Jumpers

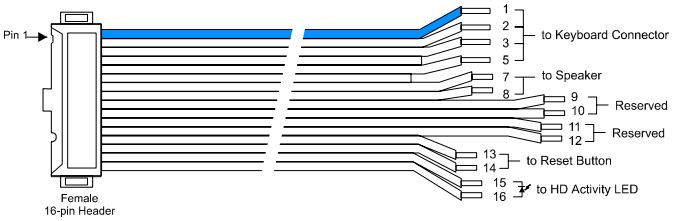
No jumper setting is required.

BIOS Level

No BIOS setup is required.

MAKING CONNECTIONS

When using the #150-018-01 keyboard cable, signals are issued as follows:



To assemble you own cable, you will need: Amp 746285-3 [optional strain relief: 499252-8], Robinson Nugent IDS-C16PK-TG, Thomas & Betts 622-1630 [optional strain relief: 622-1641], and 16-pin flat cable connector.

MORE ...

No external limiting resistor is required while connecting the HD Activity LED. A 330-ohm resistor is integrated onboard.

3.6. I/O DEVICES - KEYBOARD

The simplest way to connect a PS/2 keyboard to the board is to use the J16 standard PS/2 keyboard connector on the edge bracket. No additional cabling is required.

SETUPS

Related Jumpers

No jumper settings are required.

BIOS Level

To setup the Typematic Rate of the keyboard, run the BIOS Setup Program, *BIOS Features* option.

MAKING CONNECTIONS

Keyboard signals are also issued on the J7 Keyboard/Speaker connector. To connect a standard AT keyboard use the #150-018-01 flat cable provided with your board (see previous page).

Do not connect two keyboards simultaneously to the board. This can damage the keyboard interface.

MORE ...

A USB keyboard can replace the standard keyboard: the USB keyboard support must be declared at the BIOS level (*Integrated Peripherals* option). This option only applies at the DOS and BIOS level.

The keyboard interface is protected by a self-resetting fuse.

3.7. I/O DEVICES – PS/2 MOUSE

The simplest way to connect a PS/2 mouse to the board is to use the J15 standard PS/2 keyboard connector on the edge bracket. No additional cabling is required.

SETUPS

Related Jumpers

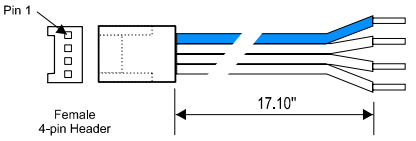
No jumper setting is required.

BIOS Level

The PS/2 mouse is assigned by default with the IRQ12 that is also used to wake-up the system when entered into a power management mode. To free this interrupt from monitoring, run the BIOS Setup program, *Power Management* option.

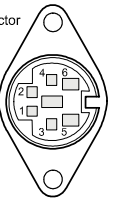
MAKING CONNECTIONS

A PS/2 mouse header (J14) is also provided onboard. To connect a mouse through this header, a shielded PS/2 mouse adapter cable is required. It is available as 18" shielded mouse cable, part number 150-337-00.



PS/2 Mouse Connector
(back view)

1	to Pin #4
2	to Pin #1
3	to Pin #3
4	to Pin #5



MORE ...

A self-resetting fuse protects the mouse interface.

3.8. PARALLEL PORT

The board features the bi-directional enhanced parallel port that supports the IEEE 1284 protocols including compatibility, nibble, byte EPP and ECP modes.

IRQs and addresses can be configured at the BIOS level.

SETUPS

Related Jumpers

No jumper setting is required.

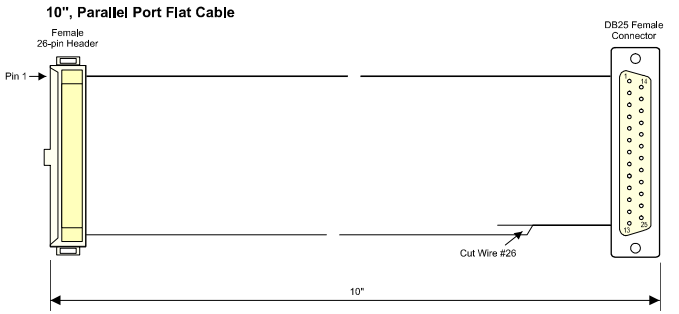
BIOS Level

The Parallel Port is assigned by default with the IRQ7 interrupt. To free this interrupt from monitoring, run the BIOS Setup program, *Power Management* option.

To setup the Parallel Port (I/O address, IRQ, operating mode), run the BIOS Setup Program, *Integrated Peripherals* option.

MAKING CONNECTIONS

The parallel port is available through the J12 Parallel Port header. To setup the parallel port as a standard printer port, a 26-pin header/D-Sub 25-pin adapter cable is required.
A 10" printer cable with bracket is available and is referred to as #150-172.



To assemble your own cable, you will need: Amp 746285-6 [optional strain relief: 499252-3], Robinson IDS-C26PK-TG, Thomas & Betts 622-2630 [optional strain relief: 622-2641], and Polarized IDC female socket connector.

MORE ...

By default, the parallel port is set for ECP+EPP 1.9 operation mode.
The signal assignation on the J12 Parallel Port connector differs depending on the operation mode. For more information on the signal assignation, please refer to Appendix D – *Connector Pinouts*.

3.9. PC/104, PC/104-*PLUS*

Standard PC/104 modules are supported through the P1/P2 PC/104 connectors.
Standard PC/104-*Plus* modules are supported through the combination of P1/P2 PC/104 connector set (ISA) and the P4 PC/104-*Plus* connector (PCI).

SETUPS

Related Jumpers

No jumper setting is required on the board.

BIOS Level

No BIOS setup is required.

MAKING CONNECTIONS

Connector implementation conforms to the PC/104 and PC/104-*Plus* specifications.

P1 provides standard ISA signals (16 bits)
P2 provides standard ISA signals (8 bits)
P4 provides standard PCI signals (32 bits)

MORE ...

When installing both a PC/104 and PC/104-*Plus* modules on the board, the PC/104-*Plus* module must be installed first and the PC/104 module on top of it.

PC/104-*Plus* modules may require setups (jumpers) before being installed on the board. For more information, please refer to the documentation of your module.

The PC/104-*Plus* interface can also be used with an expansion module to drive PCI slots.

3.10. SERIAL PORTS – SERIAL PORT 1

Serial Port 1 is available through the J10 connector and supports RS-232 operation mode.

SETUPS

Related Jumpers

No hardware setup is required.

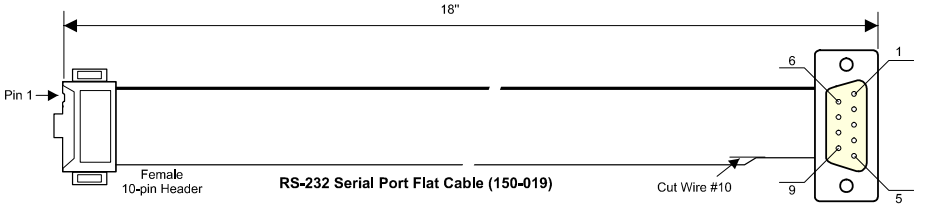
BIOS Level

The following settings are available through the BIOS Setup program:

IRQ monitoring	see *Power Management Setup* option
Port Address/IRQ assignation	see *Integrated Peripherals* option

MAKING CONNECTIONS

The usual way to connect a device to a serial port is to issue signals through a 10-pin header/D-Sub 9-pin adapter cable. An 18" 10-pin header/D-Sub 9-pin adapter cable is available and is referred to as #150-019.



To assemble your own cable, you will need: Amp 746285-1 [optional strain relief: 499252-5], Robinson Nugent IDS-C10PK-TG, Thomas & Betts 622-1030 [optional strain relief: 622-1041], and 10-pin flat cable connector.

MORE ...

Since adapter cables are provided from various sources, the pinout is often different. The direct crimp design offered allows the simplest cable assembly. All cables are available by contacting the Sales Department.

3.11. SERIAL PORTS – SERIAL PORT 2

Serial Port 2 is available through the J13 connector and supports both RS-422/RS-485 and RS-232 operation modes.

SETUPS

Related Jumpers

If required, for RS-485 mode operation, termination resistors can be tied to the RX and TX pairs of the Serial Port 2 by shorting respectively the **W3** and **W4** jumpers.

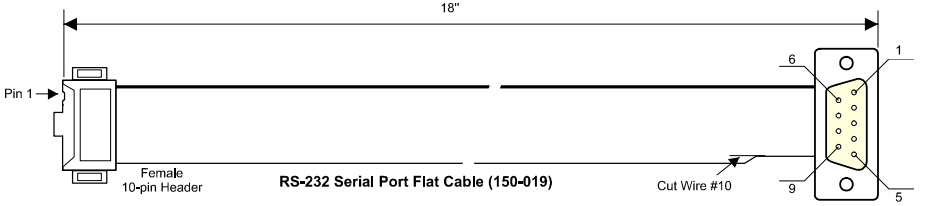
BIOS Level

The following settings are available through the BIOS Setup program:

IRQ monitoring	see *Power Management Setup* option
Port Address/IRQ assignation	see *Integrated Peripherals* option
Port Mode	see *Integrated Peripherals* option

MAKING CONNECTIONS

The usual way to connect a device to a serial port is to issue signals through a 10-pin header/D-Sub 9-pin adapter cable. An 18" 10-pin header/D-Sub 9-pin adapter cable is available and is referred to as #150-019.



To assemble your own cable, you will need: Amp 746285-1 [optional strain relief: 499252-5], Robinson Nugent IDS-C10PK-TG, Thomas & Betts 622-1030 [optional strain relief: 622-1041], and 10-pin flat cable connector.

MORE ...

In RS-485 mode, the Serial Port 2 supports either full-duplex or party line operation:

Full-Duplex – upon power-up or reset, the COM2 interface circuits are automatically set for full-duplex operation. Pins 3 and 4 of J13 act as the receiver lines and pins 5 and 6 act as the transmitter line.

Party Line – to enable party line operation, set the bit 2 of I/O port 190h (or 290h or 390h, depending on the I/O base address value – see BIOS Setup program, *Chipset Feature* option). The transceiver lines (pins 3 and 4 of J13) will be controlled by the RTS signal. Upon power-up or reset, the transceiver is by default in "receiver mode" to prevent online perturbations. If the board is placed at one end of the network, use W3 and W4 jumpers to enable the termination resistors.

3.12. STORAGE DEVICES – *Compact*Flash

A CompactFlash disk consists of a CompactFlash device and a CompactFlash module that supports it.

The CompactFlash module connects to the board through the P3 CompactFlash connector.

SETUPS

Related Jumpers

No jumper setting is required.

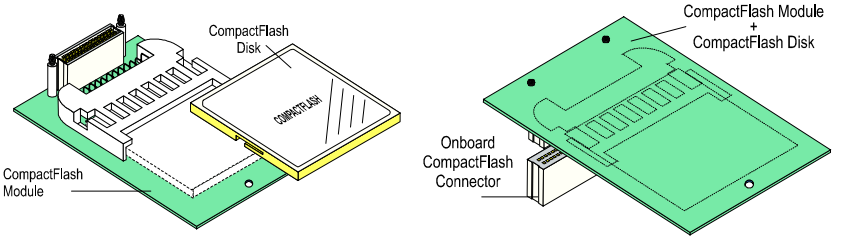
BIOS Level

Since the CompactFlash disk is IDE compliant, it requires no software driver. It is tied directly to the Secondary IDE interface.

The CompactFlash disk specifications are automatically detected at the BIOS level – *Standard CMOS Setup*.

MAKING CONNECTIONS

The CompactFlash assembly and mounting are presented below:



MORE ...

The CompactFlash disk is bootable as a standard IDE disk unit. To select the boot sequence, refer to Section 4 – *BIOS Features Setup*.

3.13. STORAGE DEVICES – FLOPPY DISK DRIVE

The floppy disk interface supports up to two drives through the J2 Floppy connector. Connecting a floppy disk drive requires a standard IBM 34-pin floppy disk cable.

SETUPS

Related Jumpers

No jumper setting is required.

BIOS Level

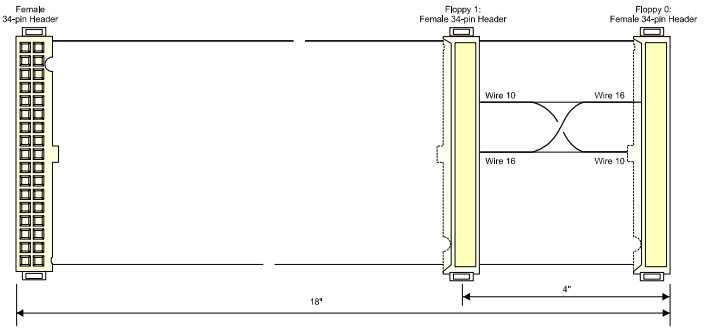
The floppy disk controller can be disabled at the BIOS level, *Integrated Peripherals* option.

To setup the floppy disk drive installation, refer to the *Standard CMOS Setup* option.

To protect the floppy disk against write accesses, refer to the *BIOS Features Setup* option.

MAKING CONNECTIONS

A standard IBM 34-pin adapter cable is required to connect a floppy disk drive. An 18" flat cable is available and is referred to as #150-051.



To assemble your own cable, you will need: Amp 746285-8 [optional strain relief: 499252-6], Robinson Nugent IDS-C34PK-TG, Thomas & Betts 622-3430 [optional strain relief: 622-3441], and 34-pin flat cable connector.

MORE ...

The connector located at the opposite of the connector that plugs into the Floppy Disk Drive connector of the board carries signals for the boot drive (Floppy 0). It is recognized as Floppy Disk A by the BIOS. The other connector is reserved to the Floppy Disk B.

3.14. STORAGE DEVICES – HARD DISK DRIVE

The board supports up to two hard disk drives through the J1 IDE connector (Primary interface), in Master/Slave configuration. Connecting a hard disk drive requires a standard IBM 40-pin hard disk cable.

SETUPS

Related Jumpers

No jumper setting is required.

BIOS Level

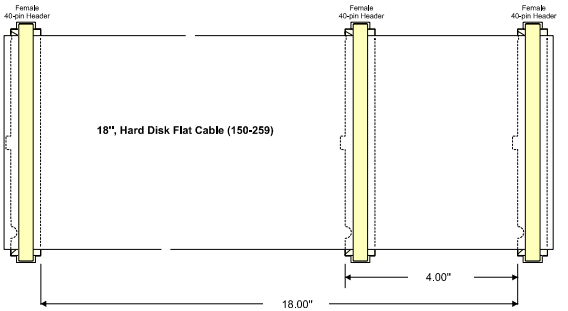
Standard setups are provided at the *Standard CMOS Setup* option.

To setup the disk boot sequence, refer to the *BIOS Features Setup* option.

Other setups are provided at the *Integrated Peripherals Setup* option

MAKING CONNECTIONS

A standard IBM 40-pin adapter cable is required to connect a hard disk drive. An 18" flat cable is available and is referred to as #150-259.



To assemble you own cable, you will need: AMP 746285-9 [optional strain relief: 499252-1], Robinson Nugent IDS-C40PK-TG, Thomas & Betts 622-4030 [optional strain relief: 622-4041], and 40-pin flat cable connector.

MORE ...

When installing two hard disks, both are connected in parallel. The recognition between Master and Slave device is provided by the jumper settings supported on the devices.

3.15. SUPERVISION FEATURES – SUPERVISOR REGISTERS

Three 8-bit supervisor registers (x90h-x92h) are provided to set and control special I/O features of the board. These registers can be assigned with three consecutive and relocatable addresses.

SETUPS

Related Jumpers

No jumper setting is required.

BIOS Level

The base address of the first supervisor register (x90h) can be selected within 190h, 290h, or 390h. Registers 1 and 2 are located at the subsequent addresses.

To select the Base Address, use the *Chipset Features, Supervisor Base Address* option.

SUPERVISIOR REGISTERS

Address	R/W	D7	D6	D5	D4	D3	D2	D1	D0
x90h	R	-	-	-	RS485	RS232	ST1	-	-
x90h	W	-	-	-	RS485	RS232	ST1	-	-
x91h	R	PBRST	-	WD0	-	-	-	-	-
x91h	W	-	-	-	-	-	-	-	-
x92h	R	-	-	-	-	-	LOCK	-	CLRHIS
x92h	W	-	-	-	-	-	LOCK	-	CLRHIS
x93h	R	-	GPIO2	GPIO1		IDCHIP	-	I2C_CLK	I2C_DATA
x93h	W	-	GPIO2	GPIO1		IDCHIP	-	I2C_CLK	I2C_DATA
x96h	R	WDEN	WDD2	WDD1	WDD0	-	-	-	-
x96h	W	WDEN	WDD2	WDD1	WDD0	-	-	-	-
x97h	R	BATFEN	BATFLT	-	-	-	-	WDNMIEN	WDNMI
x97h	W	BATFEN	-	-	-	-	-	EDNMIEN	-

RS232 Enables the UART2 RS232 operation.
RS485 Enables the UART2 RS422 & 485 operations.
ST1 Enables the RTS2 signal to be used as 485TX ENABLES when in 485 mode.
PBRST Push button reset history status.
WDO Watchdog reset history status.
LOCK A 1 locks the state of the enable bit for the programmable watchdog.
CLRHIS A 0 clears all history bits.
GPIO[2:1] General purpose I/O. Open collector output.
IDCHIP One-wire clock/data for silicon ID chip.
WDEN Digital watchdog enable. Can be forced active by jumper.
WDD[2:0] Duration of digital watchdog.
BATFEN Enables the NMI for a battery fault.
BATFLT NMI from the local RTC battery monitoring.
WDNMIEN Enables the NMI from the watchdog (stage 2).
WDNMI NMI from the watchdog timeout.

3.16. SUPERVISION FEATURES – POWER FAIL DETECTION

The Power Fail Detection feature can be used to monitor a power failure condition that could be initiated by either the onboard battery or an external power source (W9 jumper).

SETUPS

Related Jumpers

Refer to W9 Power Fail jumper to select the power source to be monitored (onboard battery or external).

BIOS Level

No setting required.

OPERATION

The power fail status is available through bit 7 (BATFEN) of the Supervisor Register x97h
The bit is trigged from High to Low when the power source that is controlled drops below a threshold:

. 3.08V, when the onboard battery voltage is controlled

. A user-defined value when an external battery placed under the control of the board.

The user-defined threshold is determined by a resistor divider made of R20 (10Kohm) and R5 to be installed by the user.

mula to calculate the value of R5: R5 = 1KΩ. (Vext –1.25)/1.25

Use the J20 External Battery connector to connect an external battery to the board.

3.17. SUPERVISION FEATURES – POWER MANAGEMENT

All power management controls and setups are provided at BIOS level.

SETUPS

Related Jumpers

No jumper setting is required.

BIOS Level

All setups are provided at the BIOS level, refer to the BIOS Setup program description.

OPERATION

The board supports three levels of power management:

Doze mode – after a selected period of system inactivity, the CPU clock runs at lower speed while all other devices still operate at full speed.

Standby mode – after entering Doze mode, and a selected period of system inactivity has elapsed, the fix disk drive and the video shut off while all other devices still operate at a full speed.

Suspend mode – after entering Standby mode, and a selected period of system inactivity has elapsed, all devices except the CPU shut off.

The power management can be resumed by an IRQ assigned to the modem (when used). An activity of the assigned IRQ always awakens the system.

The hard disk drive can be powered down while all other devices remain active. The HDD Power-down mode is only available if the device supports this capability.

3.18. SUPERVISION FEATURES – DIGITAL WATCHDOG

The board provides a digital watchdog which monitors the processor's inactivity and issues a failure signal if the processor fails to refresh the watchdog within a timeout period (1.6 seconds).

SETUPS

Related Jumpers

No jumper setting is required.

BIOS Level

No setting required.

OPERATION

When operating with the watchdog, be aware of the following:

1. Unlock the WDEN bit by writing a '0' to the bit D2 of the register x92h. Write the bits D7 to D4 in the register x96h to enable the digital watchdog. Lock the WDEN bit by writing a '1' to the bit D2 of the register x92h.
2. To refresh the watchdog, write any value to register x96h.
3. The VIPer830 is equipped with a circuit that can inform the user of the cause for the last system reset. The reset can be caused by an action on the push-button reset or a timer elapsing:

The bit D7 of the register x91h is set high if the last system reset was caused by the reset push-button.

The bit D5 of the register x91h is set high if the last system reset was caused by the watchdog timer elapsing.

Writing a '0' to the bit D0 at x92h clears these bits.

To set the value of the digital watchdog, refer to the following table and the WDD[2:0] bits (see Supervisor Register x96h)

Value	Delay
000	15.625ms
001	62.5ms
010	250ms
011	1s

Value	Delay
100	4s
101	16s
110	64s
111	256s

3.19. USB PORT

The VIPer830 provides a dual USB port through the J9 USB connector. To conform to the standard USB requirements, a USB adapter cable is required.

SETUPS

Related Jumpers

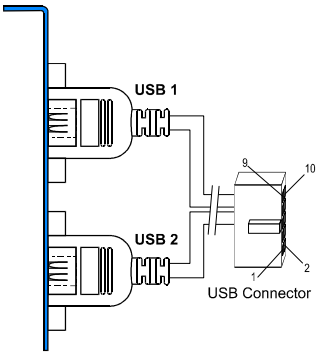
No jumper setting is required.

BIOS Level

To assign an IRQ to the USB port refer to the *PnP / PCI Configuration* option.

To connect an USB keyboard, run the BIOS Setup Program, *Chipset Features* option, and enable the USB keyboard support. This option is only supported at the BIOS and DOS level.

MAKING CONNECTIONS



A 10-pin header/Dual USB adapter cable with bracket is available and is referred to as #150-316.

MORE ...

Each channel's supply pin is protected by a self-resetting 1A fuse.

3.20. VIDEO FEATURES – CRT DISPLAY

Analog RGB VGA signals are available for direct CRT display connection through the J11 VGA CRT connector located on the edge bracket.

SETUPS

Related Jumpers

To disable the onboard video controller, install a jumper cap on the W2 jumper.

BIOS Level

The CRT Only operation mode must be set at the BIOS level, *Standard CMOS Setup* option. Other configurations are: Flat Panel Only, or simultaneous CRT/Flat Panel (*both*).

MAKING CONNECTIONS

The CRT monitor connects directly to the VIPer830 through the J11 VGA CRT connector located on the edge bracket.

MORE ...

In simultaneous CRT/Flat Panel mode (same application on both the CRT and the flat panel displays), the resolution of the CRT display is imposed by the resolution selected for the flat panel display (See the Flat Panel description on the next page).

3.21. VIDEO FEATURES – FLAT PANEL DISPLAY

The flat panel connects to the VIPer830 through the J5 Flat Panel connector. A cable must be designed to tie the panel to the board in accordance to the pinout of both the board and

SETUPS

Related Jumpers

The flat panel voltage level can be selected within 3.3V to 5V by using the **W7** jumper.

BIOS Level

Run the BIOS Setup Program, *Standard CMOS Setup* option to configure the board to support a flat panel display.

MAKING CONNECTIONS

The pinout of the onboard flat panel connector is provided in Appendix D.

When designing an application including a flat panel, ensure the video BIOS supports the panel you have chosen. For more information on flat panels and their connection, please refer to our web site (*Support and Services, Video BIOS* page), or do not hesitate to contact our Technical Support Department.

50-pin High Density Flat Panel Connector Assembly is available and is referred to as #150-105. Otherwise, you may purchase the connector by ordering one these parts: Adam Tech HFCS-50SG (Connector only), Hirose HIF6-50D-1.27R (Connector only), Oupiin 102-50GB1 (Connector only).

MORE ...

WARNING

It is recommended not to exceed a maximum length of 18” when designing a flat panel cable. Though some flat panels may support a longer cable, it is the customer’s responsibility to ensure that the additional length is fully supported by the panel’s specification.

PART 2

SOFTWARE SETUPS

4. BIOS SETUP PROGRAM

5. UPGRADING THE BIOS WITH UBIOS

6. VT100 MODE

4. BIOS SETUP PROGRAM

To run the AWARD Setup program incorporated in the ROM BIOS proceed as follows:

1. Turn on or reboot the system.
2. Hit the DELETE key before or when the message - *"PRESS **DEL** TO ENTER SETUP*" appears near the bottom of the screen.
3. The main menu appears on the screen.

The following options are available:

Option	Description
Standard CMOS Setup	This Setup page includes all the items in a standard, AT-compatible BIOS (date, time, hard disk type, floppy disk type, video adapter type, memory…).
BIOS Features Setup	Use this screen to set all the items of special enhanced features of AWARD.
Chipset CMOS Setup	Use this screen to set all the items of the chipset's special features.
Power Manag. Setup	Use this screen to set power conservation options.
PnP/PCI Configuration	Use this screen to set plug and play and PCI configuration options.
CPU / Board Feature Setups	Features that are related to the capability of the board to manage the watchdog and the temperature of the CPU.
Integrated Peripherals	I/O subsystems that depend on the integrated peripheral controllers in your system.
Supervisor/User Password Setting	Change, set, or disable password. It allows you to limit access to the system and the Setup, or just to the Setup.
IDE HDD Auto Detection	Automatically detect and configure IDE hard disk parameters.
Load Bios Defaults (Safe)	The BIOS defaults are **fail safe** settings that consist of the safest set of parameters. Use them if the system is behaving erratically. They should always work but do not provide optimal system performance.
Load Setup Defaults (Optimal)	The Setup defaults are **optimal settings** that provide optimum performance for all devices and system features. If CMOS RAM is corrupted, the Setup defaults are loaded automatically.
Save and Exit	Use this option to save the configuration in CMOS and Flash memory.
Exit without Saving	Exits the AWARD Setup without saving the configuration to CMOS RAM.

Whenever you are not sure about a certain setting, refer to the list of default values. Default values are provided in the event that a value has been changed and one wishes to restore the original values.

Loading the BIOS or SETUP defaults will affect all the options and will reset options previously altered. Loading default values at the main menu changes setups for all screens while loading default values in a particular setup screen will affect only that screen.

BIOS default settings consist of the safest set of parameters. Use it if the system is behaving erratically. They should always work but do not provide an optimal system performance.

SETUP default values provide an optimum performance for all devices and system features.



CAUTION

Before modifying CMOS setup parameters, ensure that the Battery jumper is installed (See *Setting Jumpers* Section).
The board is capable of operating without the onboard battery if the CMOS values are saved into the Flash memory.

4.1. BASIC COMMANDS

Operations within each menu and screen are summarized below:

Up arrow (↑)	Move to previous item.
Down arrow (↓)	Move to next item.
Left arrow (←)	Move to the item to the left.
Right arrow (→)	Move to the item to the right.
Esc key	In Main Menu: Quit settings with saving options. In sub-menus: Exit and return to Main Menu.
PgUp key	Increase the numeric value or make changes.
PgDn key	Decrease the numeric value or make changes.
+ key	(Numeric keypad) Increase the numeric value or make changes.
- key	(Numeric keypad) Decrease the numeric value or make changes.
F5 key	Restore the previous setup values.
F6 key	Load the default setup values from BIOS Default Table.
F7 key	Load the setup values from the Setup Default Table.
F10 key	Save all the CMOS changes.

4.2. STANDARD CMOS SETUP

This part of the setup allows you to set the time, date, hard disk type, types of floppy drives and video type.

Date/Time	The current values for each category are displayed.
Hard Disks	Two IDE controllers are implemented (Primary and Secondary); each supports two disks (Master Disk and Slave Disk).
Drive A / Drive B	Selects the category identifying the types of floppy disk drive A or drive B that have been installed in the computer.
Video	This option specifies the basic type of display adapter card installed in the system.
CRT & LCD	Indicates whether the CRT only, LCD only or Both display modes are selected.
Halt On	This option specifies the type of the error that will stop the system during the BIOS booting procedure. When an error occurs, the corresponding message is displayed. Press F1 to continue or DEL to enter into the BIOS setup program. The settings are: All errors, No errors, All but keyboard, All but diskette, and All but disk/key (default setting).

4.3. BIOS FEATURES SETUP

Option	BIOS Defaults	Setup Defaults	Possible Settings	Description
Virus Warning	Dis.	Dis.	En. / Dis.	When Enabled, you receive a warning message if a program (specifically, a virus) attempts to write to the boot sector or the partition table of the hard disk drive. You should then run an anti-virus program. Keep in mind that this feature protects only the boot sector, not the entire hard drive. **Note: Many disk diagnostic programs and OS setups (e.g., Win95 setup), that access the boot sector table, can trigger the virus-warning message. If you plan to run such a program, we recommend that you first disable the virus warning.**
Quiet POST	Dis.	Dis.	En./Dis.	At the power on self-test (POST), only the AWARD logo and the "Press DEL to enter SETUP" message appears.
Quick Power On Self Test	Dis.	En.	En./Dis.	Select Enabled to reduce the amount of time required running the POST. A quick POST skips certain steps. We recommend that you enable quick POST to save time, since most major OS do their own tests
Full Screen Logo Show	Dis.	Dis.	En./Dis.	When enabled, a full screen bitmap (BMP) picture will appear during the POST or you can have your logo being displayed. Contact the technical Support (see Appendix G).
Boot from LAN First	Dis.	Dis.	En./Dis.	If Enabled, the BIOS will first attempt to boot from the LAN. The complete procedure for this function is available on the "Boot from LAN" utility CDROM.
Raid Card Boot First	Dis.	Dis.	En./Dis.	If Enabled, the BIOS will first attempt to boot from the RAID disk card.
Boot Sequence	A,C, SCSI	C,A, SCSI	A,C,SCSI; C,A,SCSI; C,CDROM,A; CDROM,C,A; D,A,SCSI; E,A,SCSI; F,A,SCSI; SCSI,A,C; SCSI,C,A; C only; LS/ZIP,C.	This option defines the searching order in the BIOS for the boot device(s). **Note: The Boot from LAN First and Raid Card Boot First options take precedence over this option.**
Swap Floppy Drive	Dis.	Dis.	En./Dis.	Selecting Enabled assigns physical drive B to logical drive A, and physical drive A to logical drive B.
Boot Up Floppy Seek	En.	Dis.	En./Dis.	When Enabled, the BIOS tests (seeks) floppy drives to determine whether they have 40 or 80 tracks. Only 360KB floppy drives have 40 tracks; drives with 720KB, 1.2MB, and 1.44MB capacity all have 80 tracks. Because very few modern PCs have 40 track floppy drives, we recommend that you set this field to "Disabled" to save time.
Drive A Boot Permit	En.	En.	En./Dis.	When Disabled, this option will not permit booting from Drive A.
Floppy Disk Access Control	R/W	R/W	R/W, Read Only	When Read Only, this option will not permit writing to the floppy disk.

BIOS FEATURES SETUP (CONTINUED)

Option	BIOS Defaults	Setup Defaults	Possible Settings	Description
Report No FDD For Win 95	No	No	Yes, No	Select Yes to release IRQ6 when the system contains no floppy drive, for compatibility with Windows 95 logo certification. In the Integrated Peripherals screen, select NO on the Onboard FDC Controller option.
Hard Disk Write Protect	Dis.	Dis.	En./Dis.	When Enabled, this option will not permit writing to the hard disk.
HDD S.M.A.R.T. Capability	Dis.	En.	En./Dis.	When Enabled, the Self-Monitoring, Analysis, and Reporting Technology (S.M.A.R.T.) features of the HDD are supported. S.M.A.R.T is used for prediction of device degradation and/or faults.
Delay For HDD (Secs)	0	0	0-15	This number of seconds inserted prior to HDD initialization. 0 is disabled.
OS Select For DRAM > 64MB	Non-OS/2	Non-OS/2	Non-OS/2, OS/2	Select OS2 only if you are running OS/2 with greater than 64MB of RAM.
Gate A20 Option	Norm.	Fast	Normal, Fast	When Fast, enables fast switching of Gate A20 via the 440BX chipset, instead of the keyboard controller.
Security Option	Setup	Setup	Setup, Normal	If you have set a password, select whether the password is required every time the system boots (“System” option), or only when you enter Setup (“Setup” option).
Diskette Access For	All	All	All, Supervisor	When this option is set to Supervisor and the Security option to System, all floppy disk accesses (read/write) are limited to the Supervisor (supervisor password required).
Boot Up NumLock Status	On	On	On, Off	Controls the state of the NumLock key when the system boots. When set to “On”, the numeric keypad generates numbers instead of controlling cursor operations.
Typematic Rate Setting	Dis.	En.	En./Dis.	When Disabled, the following two items (Typematic Rate and Typematic Delay) are irrelevant. Keystrokes repeat at a rate determined by the keyboard controller in your system. When Enabled, you can select a typematic rate and a typematic delay.
Typematic Rate (Chars/s)	30	30	6-30 char/sec.	When the typematic rate setting is Enabled, you can select a typematic rate (the rate at which characters repeat when you hold down a key).
Typematic Delay (msec)	250	250	250-1000 ms	When the typematic rate setting is Enabled, you can select a typematic delay (the delay before keystrokes begin to repeat when you hold down a key).
VT100 Settings				
Comport	1	1	1,2	Use this option to select which COM port will be used for VT100
Speed	Auto	Auto	Auto, 2400, 9600, 19200, 38400, 57600, 115200	Select the baud rate off the COM port. used in VT100 mode.
Parity	None	None	None, Odd, Mark, Even, Space	Use this option to select the parity.
Data	8	8	7, 8	Use this option to specify the number of data bits being used.
Stop	1	1	1, 2	Use this option to specify the number of stop bits being used.

4.4. CHIPSET FEATURES SETUP

Option	BIOS Defaults	Setup Defaults	Possible Settings	Description
CPU Internal Cache	Dis.	En.	En./Dis.	Enables or Disables the CPU Internal Cache (L1 cache).
External Cache	Dis.	En.	En./Dis.	Enables or Disables the External Cache (L2 cache).
CPU L2 Cache ECC Checking (on CuMine PIII processor, you cannot disable ECC)	Dis.	En.	En./Dis.	Enables or Disables ECC Checking for L2 cache. **Note: processors provided by Kontron support ECC. However, not all Pentium® II processors support ECC. Check Intel's website to know if your processor supports ECC:** http://developer.intel.com/support/processors/pentiumII/identify.htm.
SDRAM RAS-to-CAS Delay	3	3	2, 3	**Note: Upon boot-up, the BIOS will detect and display the optimal value for the SDRAM options (three options in this menu), if it is different from the Setup value. You must enter the AWARD Setup, and set the options at the suggested value if you want the best performance.** This option inserts a timing delay between the CAS and RAS strobe signals, used when SDRAM is written to, read from, or refreshed. The number selected is the number of clocks to be inserted between a row activates command and either a read or write command.
SDRAM RAS Precharge Time	3	3	2, 3	Selects the number of CPU clocks for the RAS precharge. If an insufficient number of cycles are allowed for the RAS to accumulate its charge before SDRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data.
SDRAM CAS Latency Time	3	3	2, 3	This option controls the number of clocks between when a read command is sampled by the SDRAMs and when the chipset samples read data from the SDRAMs. Select 3 for 3 DCLKs and 2 for 2 DCLKs. If a given row is populated with a registered SDRAM DIMM, an extra clock is inserted between the read command and when the chipset samples read data.
SDRAM Precharge Control	Dis.	Dis.	En./Dis.	When Enabled, all CPU cycles to SDRAM result in an All Banks Precharge Command on the SDRAM interface.
DRAM Data Integrity Mode	Non-ECC	ECC	ECC, Non-ECC	When set to ECC, allows auto-correction of the data read from memory. The ECC error flags' status register and the error pointer are updated if error correction occurs in this mode. When set to Non-Ecc, no error checking or error reporting is done.
Memory Hole At 15M-16M	Dis.	Dis.	En./Dis.	You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.
System BIOS Cacheable	Dis.	En.	En./Dis.	Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may occur.
Video BIOS Cacheable	Dis.	En.	En./Dis.	Selecting Enabled allows caching of the video BIOS ROM at C0000h plus the VGA BIOS size, resulting in better video performance. However, in any program writes to this memory area, a system error may occur.
Video RAM Cacheable	Dis.	En.	En./Dis.	When Enabled, video memory region is cacheable. Some off-board video card drivers may behave strangely; in such a case, disable this option.
8 Bit I/O Recovery Time	3	1	1-8, NA	The I/O recovery mechanism adds bus clock cycles between PCI-originated I/O cycles to the ISA bus. This delay takes place because the PCI bus is much faster than the ISA bus. These two fields let you add recovery time (in bus clock cycles) for 8-bit and 16-bit I/O.
16 Bit I/O Recovery Time	2	1	1-4, NA	

CHIPSET FEATURES SETUP (CONTINUED)

Option	BIOS Defaults	Setup Defaults	Possible Settings	Description
PCI/VGA Palette Snoop	Dis.	Dis.	En./Dis.	Palette snooping allows multiple VGA devices operating on different buses to handle data from the CPU on each set of palette registers. When set to Enabled, data read and written by the CPU is directed to both the PCI VGA device's palette registers and the ISA VGA device's palette registers, permitting the palette registers of both to be identical. When set to Disabled, data read and written by the CPU is only directed to the PCI VGA device's palette registers.
Passive Release	En.	En.	En./Dis.	When Enabled, CPU to PCI bus accesses are allowed during passive release otherwise the arbiter only accepts another PCI master access to local SDRAM.
Delayed Transaction	Dis.	Dis.	En./Dis.	The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specifications version 2.1.
Supervisor I/O Base Address	190h	190h	190h, 290h, 390h	This option determines the base address for the Supervisor I/O Register, which is used for such functions as power fail detection and the watchdog timer.
Power-Supply Type	AT	ATX	AT, ATX	This option selects the type of power supply.
AGP Aperture Size (MB)	64	64	4 to 256	This option selects the size in MB of the AGP Aperture.
Video BIOS Shadow	Dis.	En.	En./Dis.	Software that resides in a read-only memory (ROM) chip on a device is called *firmware*. Award permits shadowing of firmware such as the system BIOS, video BIOS, and similar operating instructions that come with some expansion peripherals. Shadowing copies from ROM into system RAM, where the CPU can read it through the 64-bit DRAM bus. Firmware not shadowed must be read by the system through the 8 or 16-bit ISA bus. Shadowing improves the performance of the system BIOS and similar firmware for expansion peripherals. Enable shadowing into each section of memory separately. Many system designers hardwire shadowing of the system BIOS and eliminate a System BIOS Shadow option. Note that on a PCI VGA card (on board or off-board), the VGA BIOS is always shadowed. Video BIOS shadows into memory area C0000 plus the VGA BIOS size. The remaining areas between C0000 and DFFFF shown on the BIOS Features Setup screen may be occupied by other expansion card firmware. If an expansion peripheral in your system contains ROM-based firmware, you need to know the address range the ROM occupies to shadow it into the correct area of RAM.
C8000-CBFFF	Dis.	En.	En./Dis.	
CC000-CFFFF	Dis.	En.	En./Dis.	
D0000-D3FFF	Dis.	En.	En./Dis.	
D4000-D7FFF	Dis.	En.	En./Dis.	
D8000-DBFFF	Dis.	En.	En./Dis.	
DC000-DFFFF	Dis.	En.	En./Dis.	

4.5. POWER MANAGEMENT SETUP

Option	BIOS Default	Setup Defaults	Possible Settings	Description
ACPI Function	Dis.	Dis.	En./Dis.	The Advanced Configuration and Power Interface (ACPI) allows Operating System Direct Power Management (OSPM) and make advanced configuration architectures possible. When Enabled, the OS supports ACPI or OSPM (e.g., Win98, Window NT 5). **Note: When Enabled, no other option in the Power Management Setup will be used.**
Power Management	User Def.	User Def.	User Define, Min Saving, Max Saving	This option allows you to select the type (or degree) of power saving for Doze, Standby, and Suspend modes. Max Saving: Maximum power savings. Inactivity period is 1 minute in each mode. Min Saving: Minimum power savings. Inactivity period is the maximum setting in each mode (1 hour for Doze, Standby and Suspend). User Define: Set each mode individually. Select time-out periods in the PM Timers section (see below).
PM Control by APM	Yes	Yes	Yes, No	If Yes, the OS will control the PM by APM calls. If No, the BIOS will control the PM and APM calls from the OS will be ignored.
Video Off Method	V/H SYNC + Blank	V/H SYNC + Blank	Blank Screen V/H SYNC+Blank, DPMS,	Determines the manner in which the monitor is blanked. V/H SYNC + Blank: System turns off vertical and horizontal synchronization ports and writes blanks to the video buffer. DPMS Support: Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards Association (VESA). Use the software supplied for your video subsystem to select video power management values. Blank Screen: System only writes blanks to the video buffer.
Video Off After	Standby	Stand by	NA, Suspend, Standby, Doze,	As the system moves from lesser to greater power-saving modes, select the mode in which you want the monitor to blank.
Modem Use IRQ	3	3	N/A, 3, 4, 5, 7, 9, 10, 11	Name the IRQ line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.
Doze Mode	Dis.	Dis	Disable 1min to 1h	After the selected period of system inactivity (1 minute to 1 hour), the CPU clock runs at lower speed while all other devices still operate at full speed.
Standby Mode	Dis.	Dis.	Disable 1min to 1h	After entering Doze mode and the selected period of system inactivity (1 minute to 1 hour) has elapsed, the video shuts off while all other devices still operate at full speed.
Suspend Mode	Dis.	Dis.	Disable 1min to 1h	After entering Standby mode and the selected period of system inactivity (1 minute to 1 hour) has elapsed, all devices including the CPU shut off and the system waits for an event to wake them up again.
HDD Power Down	Dis.	Dis.	Disable 1-15min	After the selected period of drive inactivity (1 to 15 minutes), the hard disk drive powers down while all other devices remain active. The HDD power down mode is only available if the hard drive has this capability.
HDD Down When Suspend	En.	En.	En./Dis.	When Enabled and the system goes in Suspend Mode, the hard disk is shut down.
Throttle Duty Cycle	75.0%	75.0%	12.5%-75.0%	When the system enters Doze mode, the CPU clock runs only part of the time. You may select the percentage of time that the clock does not run.
PCI/VGA Act-Monitor	Dis.	Dis.	En./Dis.	When Enabled, continuous video activity restarts the global timer for Standby mode.
Soft-OFF by PWR-BTTN	Instant-off	Instant-off	Instant-off, Delay 4 sec.	This option only works with an ATX power supply. It allows two configurations for the power button: Instant-off for power supply on/off switch, or Delay 4 sec. for entering Suspend Mode after pressing the button at least 4 seconds.

...

POWER MANAGEMENT SETUP (CONTINUED)

Option	BIOS Defaults	Setup Defaults	Possible Settings	Description
Resume by Ring	Dis.	En.	En./Dis.	When Enabled and a modem is connected to a COM port, allows a modem ring to re-activate the CPU when in Suspend mode.
IRQ 8 Break Suspend	Dis.	En.	En./Dis.	When Enabled, the RTC alarm interrupt is monitored to allow an interrupt to awaken the system when in Doze, Standby or Suspend Mode.
Resume by Alarm	Dis.	Dis.	En./Dis.	When Enabled, allows setup of a time to re-activate the CPU when in Suspend mode with the options Date (of Month) Alarm and Time (hh:mm:ss) Alarm. **Note: The IRQ 8 Break Suspend option in this setup screen must be Enabled to use the RTC alarm.**
Reload Global Timer Events:				
IRQ[3-7,9-15], NMI	Dis.	En.	En./Dis.	When any of the options below is Enabled, monitoring of the interrupt will occur to allow an interrupt to awaken the system when in Doze, Standby or Suspend Mode.
Primary IDE 0	Dis.	En.	En./Dis.	
Primary IDE 1	Dis.	En.	En./Dis.	
Secondary IDE 0	Dis.	En.	En./Dis.	
Secondary IDE 1	Dis.	En.	En./Dis.	
Floppy Disk	Dis.	En.	En./Dis.	
Serial Port	En.	En.	En./Dis.	
Parallel Port	Dis.	En.	En./Dis.	

4.6. PnP/PCI CONFIGURATION

Option	BIOS Defaults	Setup Defaults	Possible Settings	Description
PnP OS Installed	Yes	No	Yes, No	If the operating system (OS) is Plug and Play (for example Windows 95), select "Yes" if you want the OS to allocate resources according to Plug and Play standards, or "No" if you want the same resource allocations at every system boot-up. Select "No" when the OS is not Plug and Play (for example, DOS). **Note: When set to "Yes", only the boot devices will get an IRQ.**
Resources Controlled By	Auto	Man.	Auto, Man.	The Award Plug and Play BIOS can automatically configure all the boot and Plug and Play-compatible devices. If you select Auto, all the interrupt requests (IRQs) and DMA assignment fields disappear, as the BIOS automatically assigns them.
Reset Configuration Data	Dis.	Dis.	En./Dis.	Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.
IRQ *n* Assigned To	PCI/ISA PnP	PCI/ISA PnP	PCI/ISA PnP, Legacy ISA	When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt: Legacy ISA: Devices compliant with the original PC AT bus specification, requiring a specific interrupt, such as IRQ4 for serial port 1. PCI/ISA PnP: Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture. When Legacy ISA is selected for an IRQ line, this resource will not be available for PCI/ISA PnP.
DMA *n* Assigned To	PCI/ISA PnP	PCI/ISA PnP	PCI/ISA PnP, Legacy ISA	When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of device using the interrupt: Legacy ISA: Devices compliant with the original PC AT bus specification, requiring a specific DMA channel. PCI/ISA PnP: Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture. When Legacy ISA is selected for a DMA channel, this resource will not be available for PCI/ISA PnP.
Init Display First	Onboard	Onboard	PCI Slot, Onboard, AGP (not supported)	Initializes the specified video display. The chosen display becomes the primary display. Other display devices are ignored by the BIOS and configured by the OS.
Assign IRQ For VGA	Dis.	Dis.	En./Dis.	When Enabled, the video card is assigned an IRQ.
Assign IRQ For USB	En.	En.	En./Dis.	When Enabled, the USB is assigned an IRQ. When Disabled, the IRQ is freed up for another purpose.
PCI Latency Timer	32	32	0-255 (integers)	This option specifies the value of the Latency Timer for the PCI bus master, in units of PCI bus clocks. Value must be a power of 2 (1, 2, 4, 8, 16, 32, 64, or 128).
Special PCI Routing	En.	En.	En./Dis.	Disable this option if the backplane into which the board is installed conforms to the PICMG specifications. When enabled the board will attempt to detect a special PCI routing configuration.
Slot [number] Use IRQ No.	Auto	Auto	Auto, 3, 4, 5, 7, 9, 10, 11, 12, 14, 15	When Auto, the BIOS automatically assigns an IRQ for the specified PCI slot number (in the option title: 1, 2, 3 or 4). When set to one of the numbers (in possible settings), that IRQ number is assigned to the PCI slot.
Used MEM Base Address	N/A	N/A	N/A, C800, CC00, D000, D400, D800, DC00	Select a base address for the memory area used by any peripheral that requires high memory.

4.7. CPU/BOARD FEATURES SETUP

Option	BIOS Defaults	Setup Defaults	Possible Settings	Description
Current Processor(s) Speed	Various, depending on the installed CPU			This option displays the current processor speed.
Front Side Bus Speed				This option displays the current FSB speed.
Thermal Management Options:				
Thermal Management	Dis.	Dis.	En./Dis.	When this option is enabled, the CPU temperature is monitored. Whenever the CPU overheats, the CPU slows down to lower the temperature.
Thermal Audio Alarm	Dis.	Dis.	En./Dis.	When the Thermal Management option and this option are enabled, a continuous audible alarm is sounded when the temperature specified in the Overheat Alarm options is reached. Such an alarm may not be supported by the Operating System.
CPU 1 Die Temp °C	-	-	Varies	Displays the current die (internal) CPU temperature, when Thermal Management is enabled.
Resume Alarm (°C)	42	42	10-70	The CPU will be slowed down (Doze mode) when it reaches the selected Overheat Alarm (°C) temperature. Full speed (Normal mode) will be resumed when the temperature comes down to the selected Resume Alarm (°C) temperature. A minimum of + 4° is automatically ensured for the Overheat Alarm temperature with reference to the Resume Alarm.
Overheat Alarm (°C)	50	50	30-90	
CPU Local Temp°C	-	-	Varies	Displays the current case (external) CPU temperature, when Thermal Management is enabled.
Save CMOS in Flash	Dis.	Dis.	En./Dis.	Saving CMOS memory content into Flash Memory will prevent to loose CMOS options when battery fails.
Watchdog Timer	Dis	Dis	En./Dis.	
Watchdog After POST	-	-	En./Dis.	This option enables Watchdog circuit after the POST sequence
Watchdog Duration (ms)	262144		64 to 262144	Use this option to setup duration time (in ms) of the Watchdog timing circuitry.

4.8. INTEGRATED PERIPHERALS

Option	BIOS Defaults	Setup Defaults	Possible Settings	Description
On-Chip Primary/ PCI IDE:	En.	En.	En./Dis.	Select Enabled to activate the Primary/Secondary IDE channel. The four options below appear only if the On-Chip Primary option is enabled.
IDE Primary Master PIO IDE Primary Slave PIO IDE Secondary Master PIO IDE Secondary Slave PIO	Auto	Auto	Auto, Modes 0-4	Use this option to set a PIO mode (0-4) for each of the onboard IDE devices. Modes 0 through 4 provide successively increased performance and speed. In Auto mode, the system automatically determines the best mode for each device. If you select a mode that the drive does not support, it may not work, so choose a lesser value or Auto to see the best mode for the drive.
IDE Primary Master UDMA IDE Secondary Master UDMA IDE Primary Slave UDMA IDE Secondary Slave UDMA	Dis.	Auto	Auto, Disabled.	Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.
On-Chip Secondary PCI IDE:	En.	En.	En./Dis.	Select Enabled to activate the Secondary IDE channel. The four options below appear only if the On-Chip Secondary option is enabled.
IDE HDD Block Mode	Dis.	En.	En./Dis.	Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.
Onboard PCI SCSI Chip	En.	En.	En./Dis.	Enables/disables the onboard SCSI controller.
Ethernet Controllers #1, #2	En.	En.	En./Dis.	Enables/disables the onboard Ethernet controller.
USB Keyboard Support	Dis.	Dis.	En./Dis.	This option is for DOS and BIOS support only (Win 95 has it is own drivers). **It does not enable or disable the USB controller.**
PS/2 Mouse Function Control	Auto	Auto	Auto/Dis.	When set to Auto, the PS/2 mouse is automatically enabled, if it is present.
Onboard FDC Controller	En.	En.	En./Dis.	Select Disabled to disable the onboard floppy disk controller (FDC).
Onboard Serial Port 1/2	Auto	Auto	Dis., 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Auto	Select a COM port address and IRQ# for the first and second serial ports.
Serial Port 2 Mode	RS-232	RS-232	RS-232,RS-422, and RS-485	Select the operation mode for Serial Port 2.
Onboard Parallel Port	378/IRQ7	378/IRQ7	Disabled, 3BC/IRQ7, 378/IRQ7, 278/IRQ5,	Select a LPT address and IRQ# for the physical parallel (printer) port.
Parallel Port Mode	ECP + EPP1.9	ECP + EPP1.9	SPP, EPP1.9+SPP, ECP, ECP+EPP1.9, Normal, EPP1.7+SPP, ECP+EPP1.7	Select an operating mode for the onboard parallel port. Select ECP or EPP unless you are certain both your hardware and software does not support ECP or EPP mode.
ECP Mode Use DMA	3	3	1, 3	Select a DMA channel for the port.

5. UPDATING THE BIOS WITH UBIOS

5.1. UBIOS.EXE 4.1 - BIOS UPDATE AND COPY UTILITY

> **IMPORTANT**
> This utility is used to update the BIOS on Kontron's single board computer. To ensure the success of this operation, please read entirely these instructions before using this program.

You can run this utility in 2 different modes:

1. Interactive Mode: In this mode the program is menu-driven. This mode is explained in Section 4.2.4.
2. Batch Mode: It is also possible to run the program without menus by a command, which specifies the selected options and files with parameters. This mode is explained in Section 4.2.5.

5.2. HOW TO DO A SUCCESSFUL UPDATE

UBIOS needs to be run in DOS 3.3 or higher or compatible environment.

1. Take note of your special BIOS options such as drive settings, hard disks and custom settings. After the update, these options will be set to their default values and all changes will need to be re-entered.

2. Ensure you have the proper BIOS file required to execute the update.
   These files may be obtained from Kontron WEB site, by Kontron technical support or by UBIOS itself.
   Refer to the 'How to do a Successful Copy' for details about the last source.

3. Boot in a driver free environment. **No Hi-memory driver must be loaded**.
   To boot with a free environment, follow these steps:
   - **In DOS**:
     Boot with the F5 key pressed, this will disable config.sys and autoexec.bat interaction.
   - **In Windows 9x**:
     Boot with the F8 key pressed and choose *'safe mode command prompt only'* option.

4. Call the UBIOS program and follow the instruction menu. To do a complete BIOS update, select item 'A) Update all BIOS'.

5.3. HOW TO DO A SUCCESSFUL COPY

Follow the same procedure as above.

To do a complete BIOS copy, select item '**a) Copy all BIOS'.**

Advanced functionality

Advanced functionality is resumed in the UBIOS help mode.
To call UBIOS help page, use UBIOS /?

VT-100 mode

UBIOS can be used without a screen in Kontron's VT-100 mode. This mode transfers all screen and keyboard text activity through the serial port.

To use UBIOS in vt-100, use the /vt argument like: UBIOS /vt

In this mode, scan code keys are not transmitted. These keys include the 'home', 'end', 'Pg Up', 'Pg Dn' keys that can be useful to UBIOS. To bypass this limitation, the numerical keypad can be used.

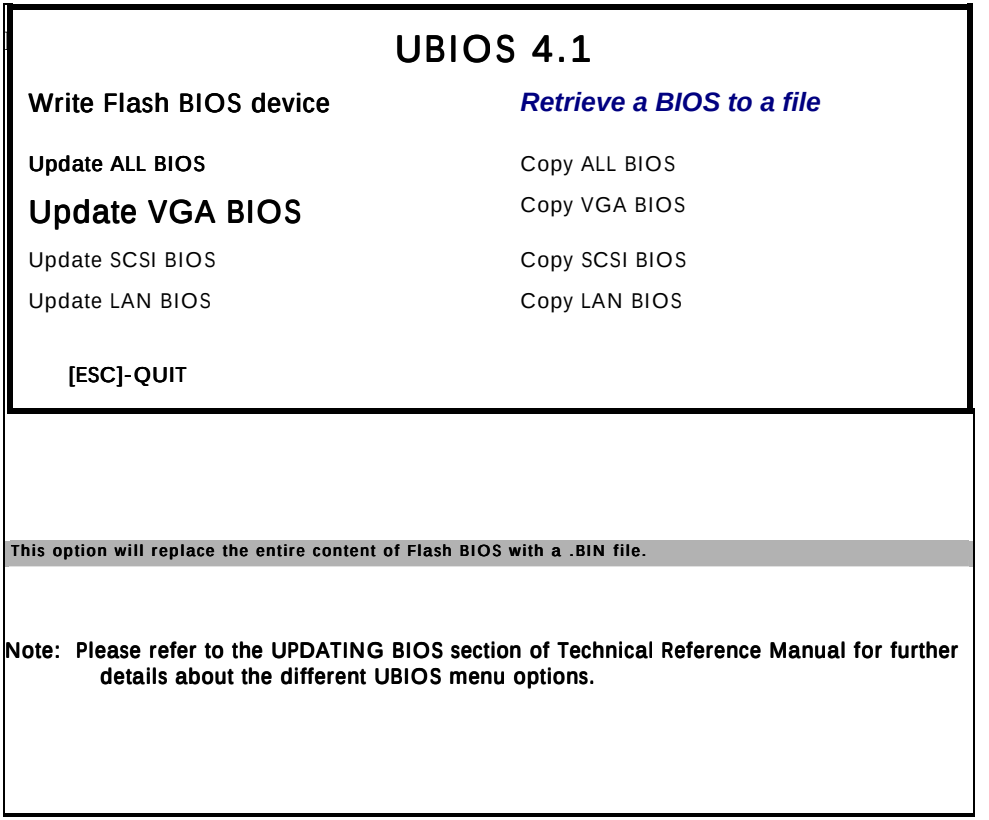
'7' will be assigned to 'home',
'8' to the up arrow,
'9' to 'Pg Dn'
…
'5' will be assigned to the 'Esc' key.

5.4. UBIOS – INTERACTIVE MODE

To run the program in interactive mode, type "UBIOS" from the DOS prompt and the UBIOS 4.0 presentation screen will be displayed. To continue, hit any key on the keyboard. This brings you to the main menu.

5.4.1 Main Menu

The main menu appears below:



The main menu displays two groups of options: Write Flash BIOS device and Retrieve a BIOS to a file. The first group allows you to update the Flash BIOS device with a BIOS file stored on disk. The second group allows you to copy the contents of the Flash BIOS device to files on disk.

In the above menu, the option **Update ALL BIOS** is highlighted and the option is described in the shaded row below. Move the arrow keys to highlight other options.

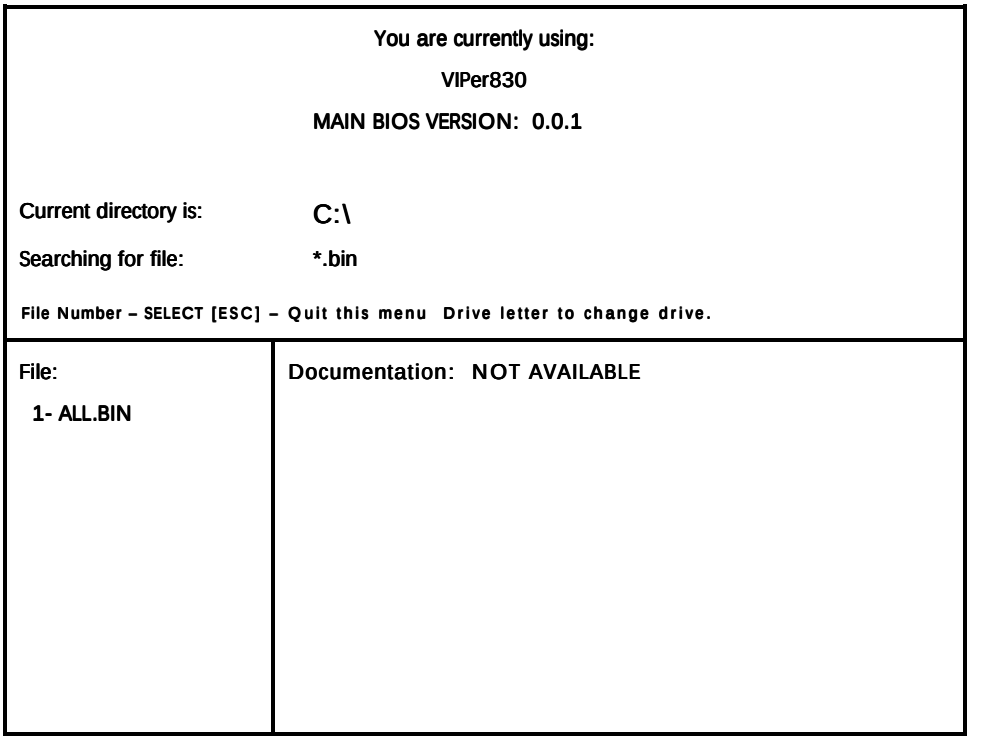
To **select** the highlighted option, press ENTER.
To **exit the program**, press the ESC key when you are in the main menu.

There are four types of BIOS files appearing on the main menu:

1. ALL BIOS File: This file combines all BIOS files contained in the Flash BIOS device in a single file. It has the .BIN extension.
2. VGA BIOS File: This file contains the VGA BIOS section of the Flash BIOS. There are two possible types of VGA BIOS files: files with the .VGA extension (supports CRT displays only) and files with the .BFP extension (supports CRT and Flat Panel displays).
3. SCSI BIOS File: This file contains the SCSI BIOS section of the Flash BIOS. It has the .BIN or .SCS extension.
4. LAN BIOS File: This file contains the LAN BIOS section of the Flash BIOS. It has the .BIN extension.

5.4.2 Updating the Flash BIOS

If you select one of the **Update** options from the main menu, a screen similar to the following is displayed:

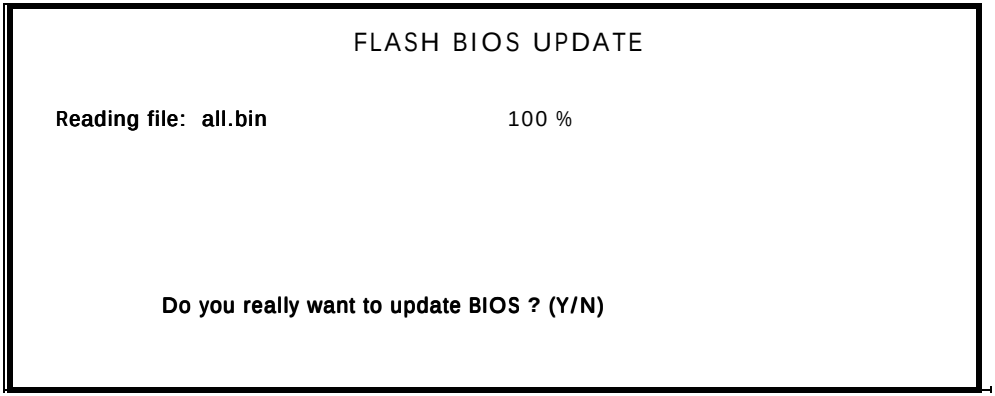


Files of the type you selected in the main menu and which are in the current directory are displayed in the **File** window.

To change directory, type the drive letter. If there are any files of the type you selected in this directory, they will be displayed in the **File** window.

The **Documentation** window displays “NOT AVAILABLE”. It will be used in the future for displaying the contents of a .doc file.

If you want to return to the previous menu, press the ESC key.
To select a file from the **File** window, in order to update the Flash BIOS with this file, type the file number which appears before the filename in the list. A new screen is displayed as shown below. This is the Flash BIOS Update screen. You must first confirm if you want to update the Flash BIOS with the selected file (the filename appears next to **Reading file)**, by typing “Y” for Yes, “N” for No.



If you choose to update the file, by typing "Y", the program will write the file to Flash. The progress of the operation is indicated in percentage completed, next to **PLEASE WAIT – Writing to Flash …**

When the update is over the screen will appear as follow:

```
                    FLASH BIOS UPDATE

Reading file:  all.bin                    100 %
PLEASE WAIT – Writing to Flash ...        100 %



     Do you really want to update BIOS ? (Y/N)
```

```
Make sure that the watchdog is disabled by JUMPER DURING the next boot ONLY.
     Just to ensure a good FPGA update.
     After the next boot you can enable the watchdog.
     Please REBOOT as soon as possible ...
        Note:   Please refer to the UPDATING BIOS section of Technical Reference
                Manual.

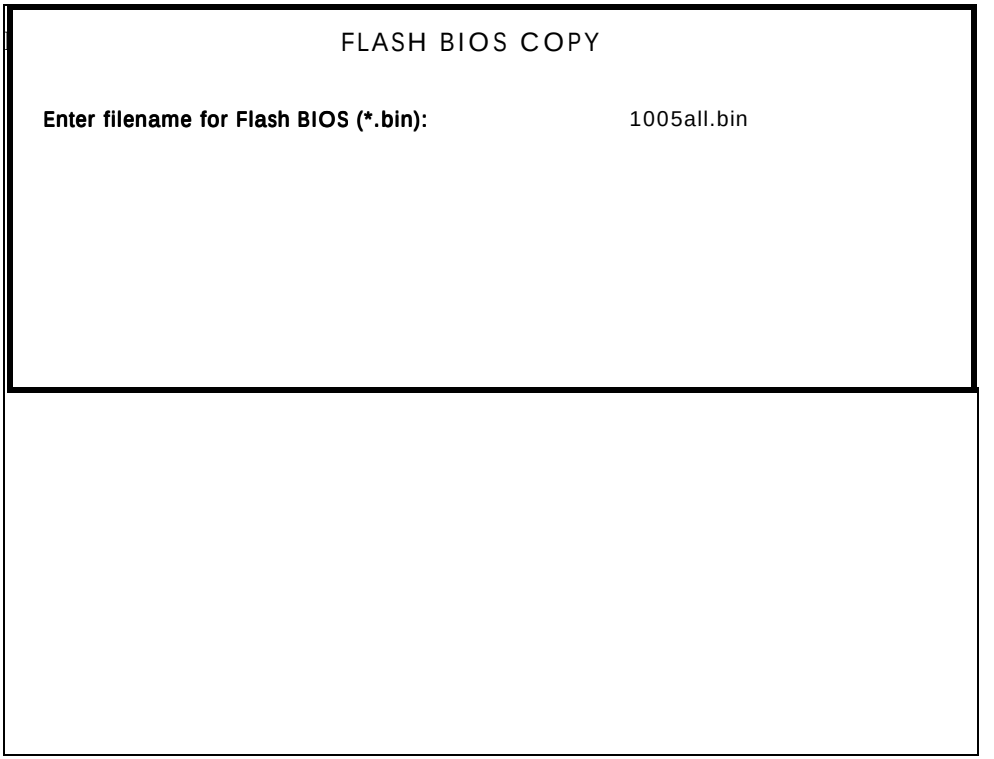
                                        Hit any key to continue ...
```

To return to the main menu, hit any key on the keyboard.

> **NOTE**
>
> There may be slight changes to the Flash BIOS Update screen compared to those shown here for an Update ALL BIOS operation. Also, if an error occurs, these will be indicated on the screen.

5.4.3 Copying Flash BIOS

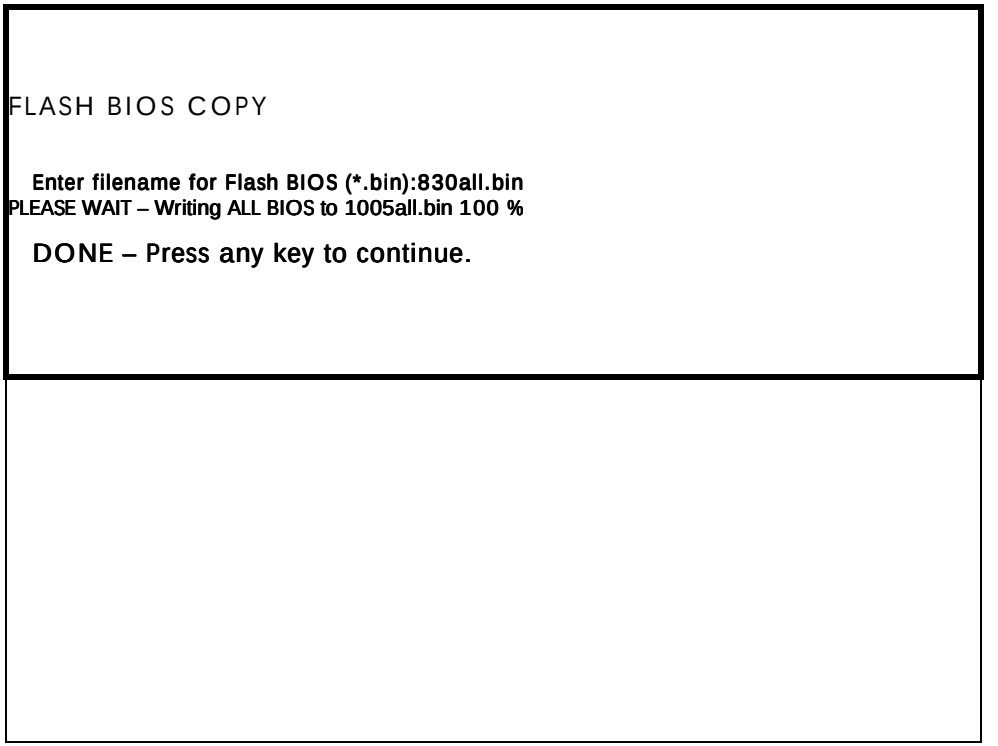
If you select one of the **Copy** options from the main menu, a screen similar to the following is displayed:



You begin a Flash Copy operation, by typing a filename (including the extension) for the file you are creating. In the above example, the filename entered was “1005all.bin”.

Press ENTER to proceed.

The progress of the operation will display on the screen in percentage completed. The example shown on the following page is for the Copy ALL BIOS option.



If the filename entered for the BIOS file already exists, the following message will appear on the screen:

File already exits! Overwrite? (Y/N)

If you choose to overwrite the existing file, its content will be lost.

To return to the main menu, hit any key on the keyboard.

NOTE

There may be slight changes to the Flash BIOS Copy screen compared to those shown here for a Copy ALL BIOS operation. Also, if an error occurs, these will be indicated on the screen.

5.5. UBIOS – BATCH MODE

While files can be manually selected using the Interactive Mode, Flash BIOS Update or Copy can be achieved through Batch Mode.

The command line format is as follows:

UBIOS /B [operation] [filetype] [filename] [options] where:

/B or /-B specifies that this is a Batch Mode command.

[operation] is the Flash BIOS operation you wish to perform, and can be replaced with one of three letters: U for Update, C for Copy, or V for Verify (used to compare the contents of the Flash BIOS device and the specified BIOS file).

[filetype] is the filetype of the BIOS file to program (with an update operation) or to create (with a copy operation), and can be replaced with one of the following:

ALL for All BIOS files in a single file with the .BIN extension,
VGA for VGA BIOS file with the .VGA or .BFP extension,
SCSI for SCSI BIOS file with the .BIN extension,
LAN for LAN BIOS file with the .BIN extension.

[filename] is the name of the BIOS file (including the extension) to program (with an update operation) or to create (with a copy operation), and can be replaced with the filename which corresponds to the filetype. For example, if "VGA" was listed as filetype, then the filename could be "FLAT.BFP".

[options] these are optional parameters that may be added:

/C This option will not clear the CMOS Setup when updating main BIOS (AWARD BIOS), however this is not recommended since the CMOS Setup should be updated when the main BIOS is changed.

/R Instructs UBIOS to reset the board upon completion of the operation.

/VT For VT100 compatibility.

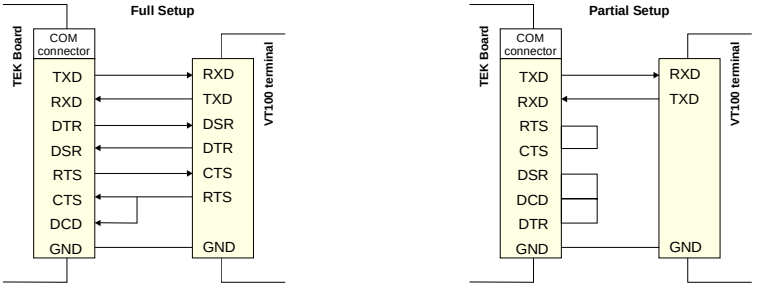
/? To get a summary of the Batch Mode options from UBIOS. It will display a Batch options summary of valid UBIOS command lines. The same help information will also be displayed each time UBIOS detects an error in the command line.

6. VT100 MODE

The VT100 mode may be required to communicate with the board using a remote terminal through a serial communication link.

In this configuration, the remote terminal must emulate VT100 or ANSI terminal and support an emulation program such as Telix or Procomm.

The serial cable must conform to one of the following:



6.1. SETUP AND CONFIGURATION

Follow these steps for setting up VT100 Mode:

- Power off your VIPer830 and install the jumper W5 to enable the VT100 Mode. Note: both Serial Port 1 and Serial Port 2 support the VT100 Mode.
- Connect the serial cable. Note: if a full setup cable is not required, a partial cable with only the TXD and RXD lines can be used. Simply loop back the control lines according to the partial setup cable diagram.
- Power on your VIPer830, run the BIOS Setup program, select the *Integrated Peripherals* option, and choose a communication port.
- The remote terminal must be set to support the following protocol:
  8 Bits / No Parity / 1 stop bit / Echo Off.

6.2. RUNNING WITHOUT A TERMINAL

The board can boot up without a screen or terminal attached. However, if VT100 Mode is desired, but the terminal is to be disconnected, you must ensure that the control lines are in an active state. Failing this, the system may "hang" while waiting for the control lines to become active. Wiring the cable according to the partial setup allows the lines to remain active. This does not apply if the VT100 jumper is not set.

PART 3

APPENDICES

A. BOARD SPECIFICATIONS

B. MEMORY AND I/O MAPS

C. BOARD DIAGRAMS

D. CONNECTOR PINOUTS

E. BIOS SETUP ERROR CODES

F. EMERGENCY PROCEDURE

A. BOARD SPECIFICATIONS

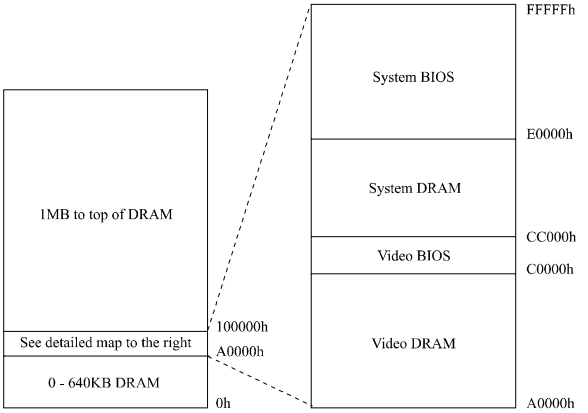
VIPer830	DESCRIPTION
Overview	Half-Size ISA Industrial Single Board Computer
Supported Microprocessors	Intel Celeron at 300, 333, 366, 400, 433MHz and future speeds 440BX PCI chipset
Data Path	64-bit on CPU and memory bus ; 32-bit on PCI bus ; 16-bit on ISA bus
Bus Interface	66MHz Front Side Bus, SDRAM bus (100MHz future speed support) PC/AT bus or stand-alone operation PCI Rev 2.1 compliant ; external expansion through PC/104-Plus connector USB interface EIDE interface
System Memory	Up to 128MB of Synchronous DRAM or 256MB of Registered SDRAM shared on one 168-pin DIMM socket. 1M64/72, 2M64/72, 4M64/72, 8M64/72, Standard 3V single-sided or double-sided modules ; ECC supported
Cache Memory	Level 1: 16/16KB Instruction/Data CPU-internal L1 cache Level 2: 128KB pipelined burst L2 cache (on the CPU module), ECC protected. Same speed as the CPU core.
Boot Block Flash	256KB of Flash BIOS for field upgrade
I/Os	*USB* Two USB ports, software compatible with NS16C550 *Serial* Two UART serial ports configurable as COM1-4. COM2 is configurable as RS-232, RS-422, or RS-485. *Parallel* One bi-directional multimode port with EPP and ECP support *Hard Disk* Enhanced IDE interface for up to two devices in Master/Slave configuration; LBA, PIO Mode 0-4 and Ultra DMA/33 *Flash Disk* Optional CompactFlash disk interface on the Secondary EIDE channel, user upgradable, bootable *Floppy* Supports for two disk drives from 360KB to 2.88MB *Ethernet* Auto-select 10Base-T, 100Base-TX (Intel 82559) *Keyboard* Standard AT and PS/2 keyboard *Mouse* PS/2 mouse

VIPer830	DESCRIPTION
Video	Integrated AGP 64-bit video controller from Chips and Technologies (69000) with 2MB of on-chip RSDRAM video memory Simultaneous CRT / Flat Panel display support CRT: up to 1024x768x64K colors or 1280x1024x256 colors FP: 3.3V and 5V panels are supported. Power is provided through the flat panel cable. DSTN, TFT color displays ; Get Panel Type function Supports up to 1280x1024x256 SXGA panels
Connectors	*Edge Bracket* CRT video 15-pin D-Sub Ethernet RJ-45 with built-in LEDs PS/2 mouse 6-pin Mini-DIN PS/2 keyboard 6-pin Mini-DIN *Onboard Connectors* IDE Hard Drive 40-pin shrouded header Floppy Disk 34-pin shrouded header Kbd, Spk, LED 16-pin shrouded header USB 10-pin connector Flat Panel 50-pin + 20-pin shrouded headers Fan 2-pin lock header Power 6-pin connector PS/2 Mouse 4-pin lock header CompactFlash 40-pin dedicated connector Parallel Port 26-pin shrouded header Serial Ports 10-pin shrouded headers Power Down 2-pin lock header PC/104+ PC/104+ standard connector
BIOS Features	Award BIOS in Boot Block Flash. Batteryless operation with CMOS copy in the flash BIOS device Auto configuration, extended setup, PnP support. Extension for Diskless, keyboardless, and videoless operations. BIOS POST and Setup console redirection to serial port. Boot Block Flash with emergency recovery code. System and video, BIOS shadowing Advanced thermal management with CPU resume and overheat alarm. Ability to support MS-DOS and other applications from Flash disk. Y2K compliant.

<table>
<tr><th>VIPer830</th><th>DESCRIPTION</th></tr>
<tr><td>Supervisory</td><td>Two-stage digital watchdog timer ;
CPU temperature monitoring ; Power failure / low battery detector;
Built-in Ethernet activity / link.LEDs</td></tr>
<tr><td>Operating System Compatibility</td><td>MS-DOS® 6.2x, Windows® 3.11, Windows® 95, Windows® 95 OSR2, Windows® NT 4.0, Windows® NT 5.0, Windows® 98, QNX 4.24, etc</td></tr>
<tr><td>Dimensions</td><td>7.125 x 4.80 inches / 181 x 122 mm
Half-size form factor</td></tr>
<tr><td>Power Requirements</td><td>Supply Voltages +5V, ±5%
<table><tr><th>Processor</th><th>Normal</th><th>Doze</th><th>Standby</th><th>Suspend</th></tr><tr><td>Celeron 300MHz</td><td>3.80A</td><td>2.31A</td><td>2.20A</td><td>1.69A</td></tr><tr><td>Celeron 366MHz</td><td>4.14A</td><td>2.43A</td><td>2.35A</td><td>1.74A</td></tr><tr><td>Celeron 433MHz</td><td>4.38A</td><td>2.50A</td><td>2.50A</td><td>1.75A</td></tr><tr><td>Setup</td><td colspan="4">At the DOS prompt ; 64MB PC100 SDRAM</td></tr></table></td></tr>
<tr><td>Reliability</td><td>MTBF: over 100,000 hours (MIL-HDBK-217F)
Designed to meet or exceed:
Safety: UL1950 ; CSA C22.2 No950 ; EN 60950 ; IEC950
EMI/EMC: FCC 47 CFR Part 15/CISPR22 ;
CE Mark to EN55022/EN50082.
USB and keyboard/mouse voltage protected by self-resetting fuses.
Board serial number in EEPROM</td></tr>
<tr><td>Environmental Conditions</td><td>Operating Temp. 0 to +60°C (with airflow) - 5% to 95%
Storage Temp. -30°C to +85°C</td></tr>
</table>

B. MEMORY & I/O MAPS

B.1. MEMORY MAPPING



Address	Function
00000-9FFFF	0-640 KB DRAM
A0000-BFFFF	128KB Video Memory
C0000-CBFFF	48KB Video BIOS
E0000-FFFFF	128KB Main BIOS
100000-Top of DRAM	1 MB - Top of DRAM

Please note that if the Boot from LAN option is activated, the BIOS LAN (30KB) is located between CC000h and E0000h.

B.2. I/O MAPPING

Address	Optional Add.	Optional Add.	Optional Add.	Function
000-01F				DMA Controller 1
020-03F				Interrupt Controller 1
040-05F				Timers
060-06F				Keyboard
070-07F				Real-time clock
080-09F				DMA Page Register
0A0-0BF				Interrupt Controller 2
0C0-0DF				DMA Controller 2
0F0-0F1, 0F8-0FF				Math Coprocessor
190-197	290-297	390-397		Control Port
1F0-1F7, 3F6				Primary IDE
170-177, 376				Secondary IDE
3F0-3F7	370-377			Floppy Disk
378-37A	3BC-3BE	278-27A		Parallel Port (LPT1 by default)
3F8-3FF (COM1)	2F8-2FF (COM2)	3E8-3EF (COM3)	2E8-2EF (COM4)	Serial Port 1 (COM1 by default)
2F8-2FF (COM2)	3F8-3FF (COM1)	3E8-3EF (COM3)	2E8-2EF (COM4)	Serial Port 2 (COM2 by default)
3C0-3CF, 3D0-3DF, 3B0-3BB				Graphics Controller (I2C Port)

B.3. IRQ LINES

The board is fully PC compatible with interrupt steering for PCI plug and play compatibility.

Controller # 1		Controller # 2	
IRQ 0	Timer Output 0	IRQ 8	Real-Time Clock
IRQ 1	Keyboard (Output Buffer Full)	IRQ 9	Available [1]
IRQ 2	Cascade Controller # 2	IRQ 10	Available [1]
IRQ 3	Serial Port 2 *	IRQ 11	Available [1]
IRQ 4	Serial Port 1 *	IRQ 12	PS/2 Mouse
IRQ 5	Parallel Port 2 *	IRQ 13	Coprocessor Error
IRQ 6	Floppy Controller *	IRQ 14	Primary IDE * or available [1]
IRQ 7	Parallel Port 1 * or Available [1]	IRQ 15	Secondary IDE * or available [1]

* All functions marked with an asterisk (*) can be disabled or reconfigured.

[1] Available lines service on board and external PCI/ISA PnP devices or a Legacy ISA device.

B.4. DMA CHANNELS

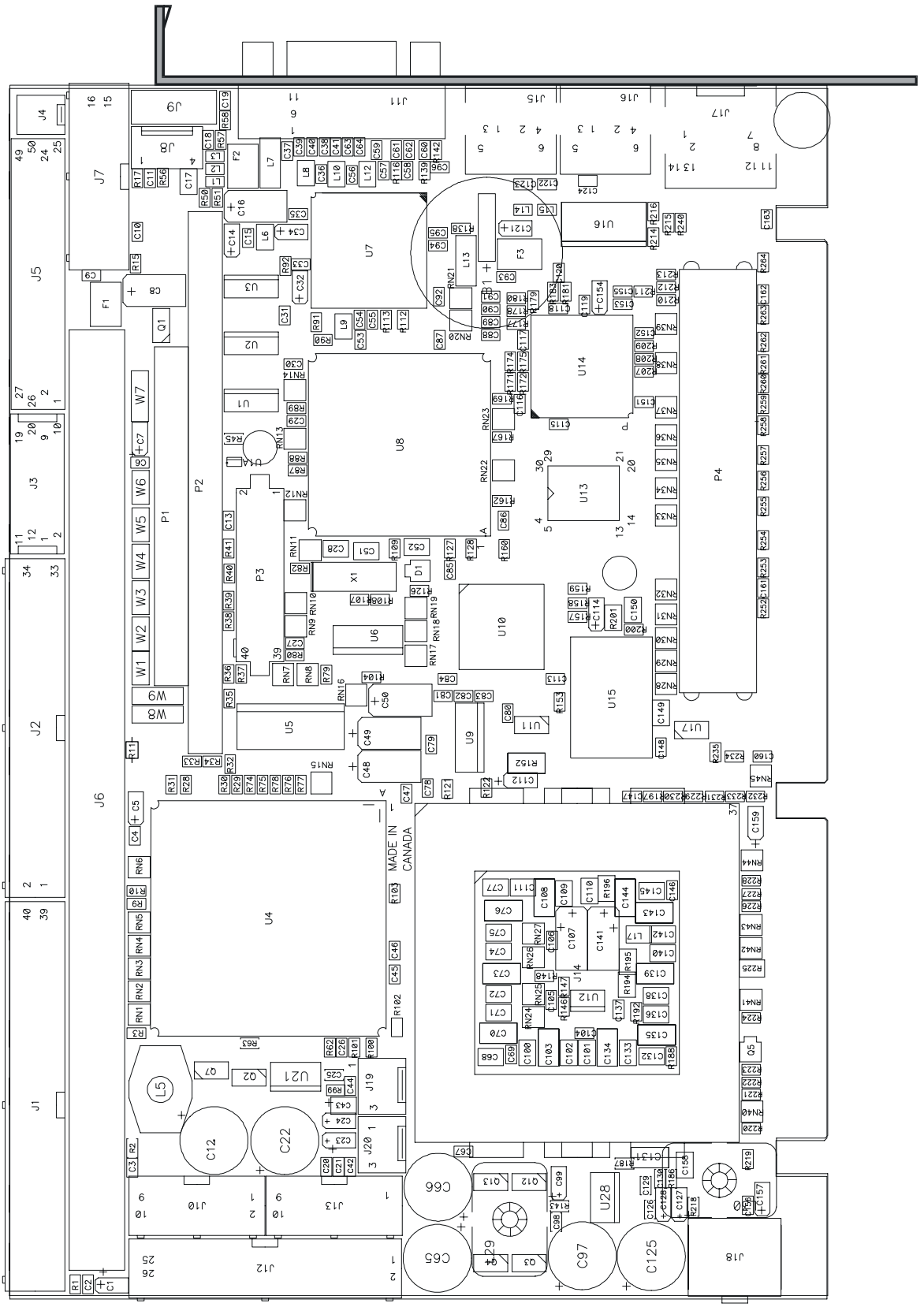
The board provides the functionality of two 8237 DMA controllers. Eight DMA channels are available.

According to Plug and Play standards, the system BIOS automatically allocates DMA Channel 1 or 3 for the parallel port's ECP mode. Channel 2 is reserved for the floppy controller and Channel 4 is used to cascade Channels 0 through 7 to the microprocessor.

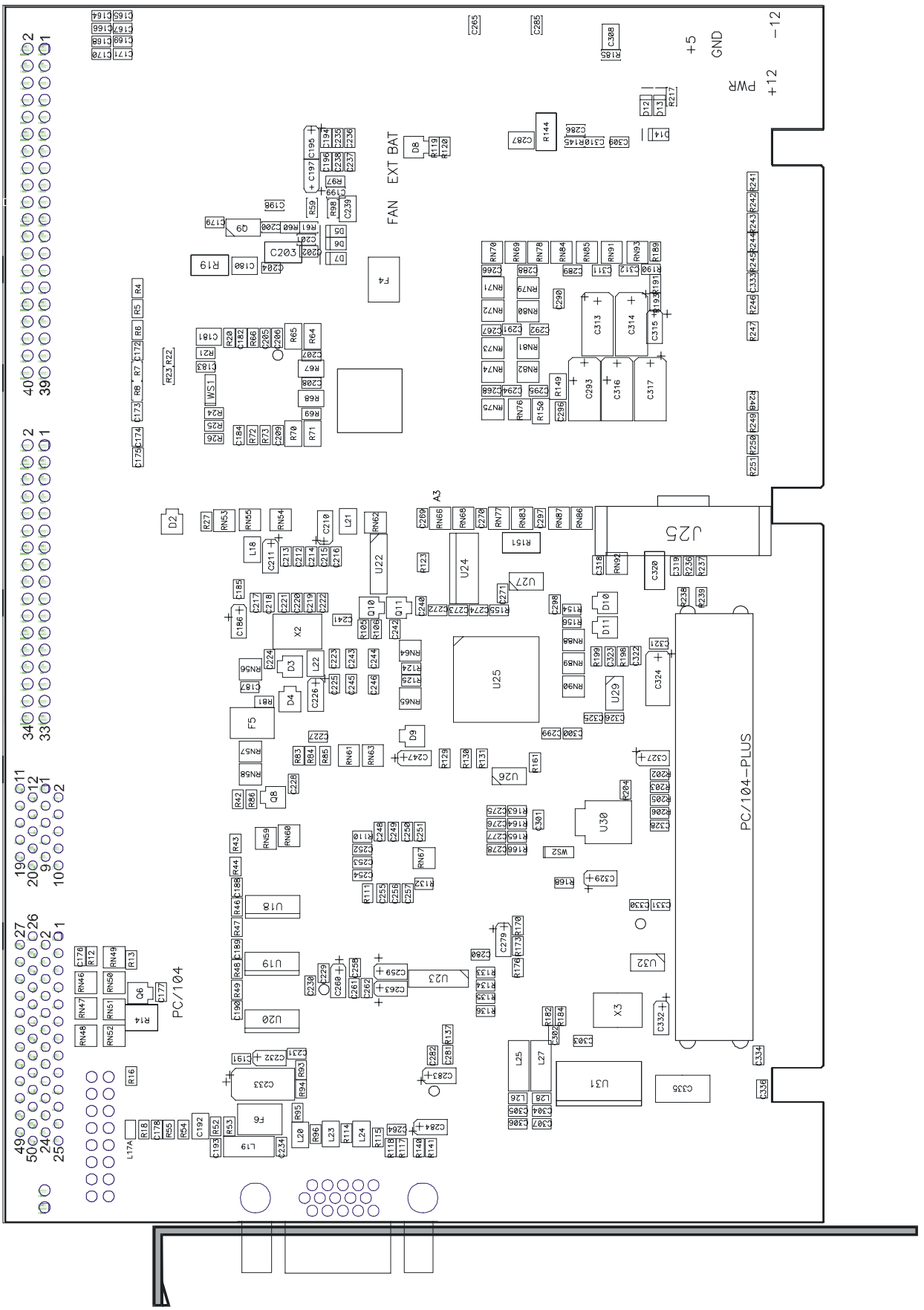
DMA Channel	Function
DMA 0	Available
DMA 1	PnP available (ECP)
DMA 2	Floppy controller
DMA 3	PnP available (ECP) *
DMA 4	Cascade controller # 1
DMA 5	PnP available
DMA 6	PnP available
DMA 7	PnP available

C. BOARD DIAGRAMS

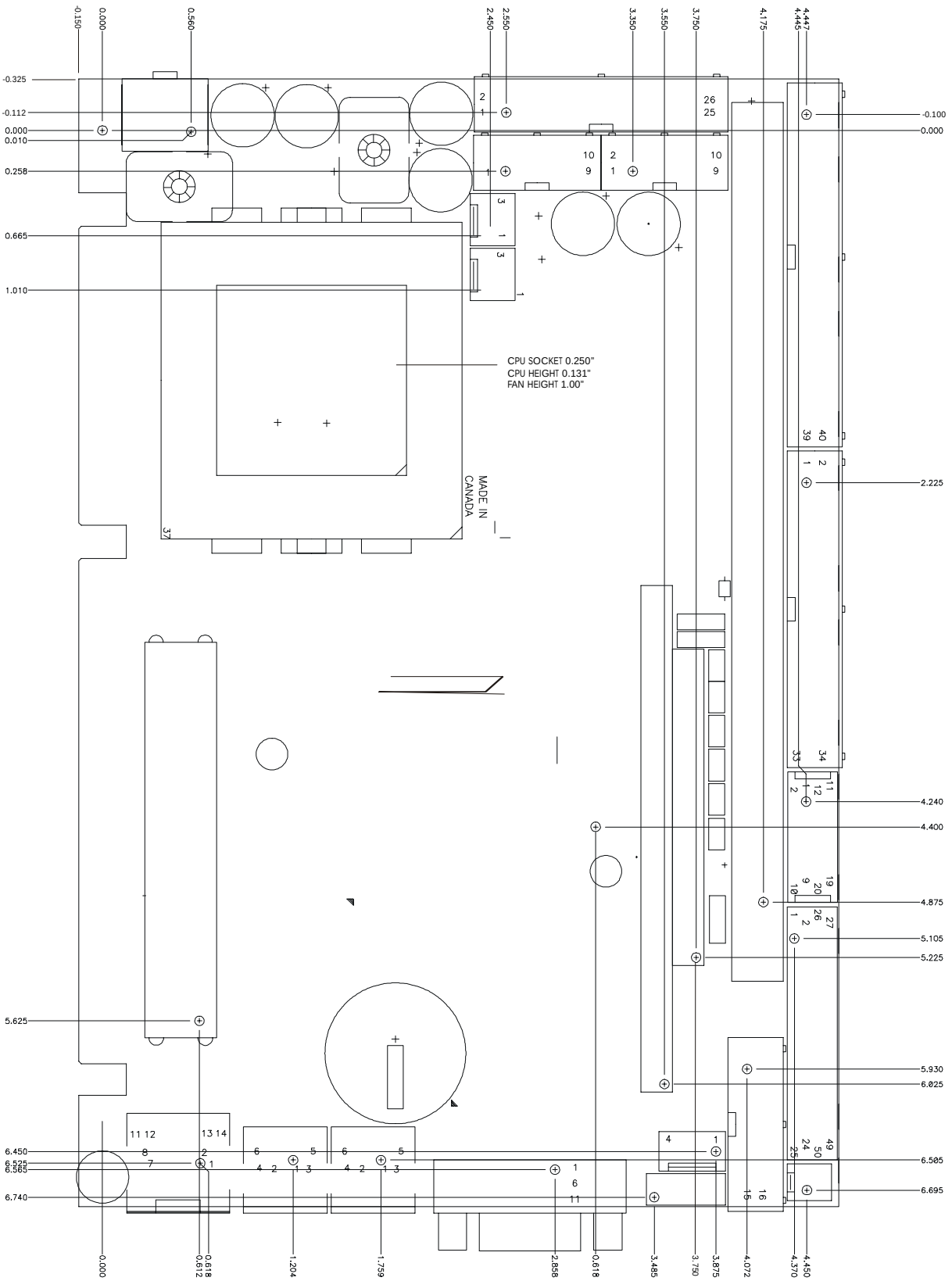
C.1. ASSEMBLY - TOP DIAGRAM



C.2. ASSEMBLY - BOTTOM DIAGRAM



C.3. ASSEMBLY - MECHANICAL DIAGRAM



D. CONNECTOR PINOUTS

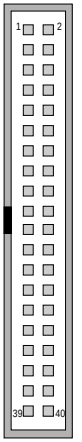
Connectors and headers are listed below:

J1	IDE Hard Disk Drive connector
J2	Floppy Disk connector
J3	Flat Panel Connector
J4	Power Button header
J5	Flat Panel Connector
J7	Keyboard / Speaker
J8	PS/2 Mouse header
J9	Dual USB header
J10	Serial Port 1 header
J11	SVGA CRT Video connector
J12	Parallel Port header
J13	Serial Port 2 header
J15	PS/2 Mouse mini-DIN connector
J16	PS/2 Keyboard mini-DIN connector
J17	Ethernet connector
J18	External Power connector
J19	Fan Power header
J20	External Battery header
P1/P2	PC/104 connector (16-bit/8-bit)
P3	CompactFlash connector
P4	PC/104+ connector

D.1. IDE HARD DISK DRIVE CONNECTOR (J1)

Pin Number		Pin Number	
Signal			Signal
RST#	1	2	GND
D7	3	4	D8
D6	5	6	D9
D5	7	8	D10
D4	9	10	D11
D3	11	12	D12
D2	13	14	D13
D1	15	16	D14
D0	17	18	D15
GND	19	20	N.C.
REQ	21	22	GND
IOW#	23	24	GND
IOR#	25	26	GND
IORDY	27	28	CSEL
DACK#	29	30	GND
IRQ	31	32	N.C.
A1	33	34	DIAG#
A0	35	36	A2
CS0#	37	38	CS1#
ACT#	39	40	GND

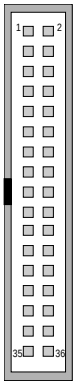
Top View



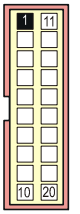
D.2. FLOPPY DISK DRIVE CONNECTOR (J2)

Pin Number		Pin Number	
Signal			Signal
GND	1	2	DENSEL#
GND	3	4	N.C.
GND	5	6	N.C.
GND	7	8	INDEX#
GND	9	10	MTR0#
GND	11	12	DSEL1#
GND	13	14	DSEL0#
GND	15	16	MTR1#
N.C.	17	18	DIR#
GND	19	20	STEP#
GND	21	22	WDATA#
GND	23	24	WGATE#
GND	25	26	TRK0#
N.C.	27	28	WRPROT#
FDETECT#	29	30	RDATA#
GND	31	32	HDSEL#
N.C.	33	34	DSKCHG#

Top View



D.3. FLAT PANEL (J3)

Pin Number		Top View	Pin Number	
Signal				Signal
FP24	1		11	FP32
FP25	2		12	FP33
FP26	3		13	FP34
FP27	4		14	FP35
GND	5		15	GND
FP28	6		16	SHFCLK#
FP29	7		17	GP1
FP30	8		18	GP2
FP31	9		19	ACTI
GND	10		20	FPVAR

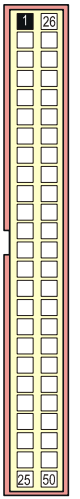
D.4. POWER BUTTON (J4)

Pin Number		Front View
Signal		
PWR_BTN	1	
GND	2	

D.5. FLAT PANEL CONNECTOR (J5)

Pin Number	Signal
1	ENAVCC
2	FPVAR
3	ENVEE
4	STDBY#
5	ENABLK
6	GND
7	M/DE
8	FPVAR
9	GND
10	LP/DE
11	FLM
12	GND
13	SHFCLK
14	GND
15	FP0
16	FP1
17	GND
18	FP2
19	FP3
20	GND
21	FP4
22	FP5
23	GND
24	FP6
25	FP7

Top View

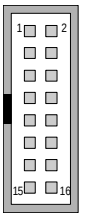


Pin Number	Signal
26	GND
27	FP8
28	FP9
29	GND
30	FP10
31	FP11
32	GND
33	FP12
34	FP13
35	GND
36	FP14
37	FP15
38	GND
39	FP16
40	FP17
41	GND
42	FP18
43	FP19
44	GND
45	FP20
46	FP21
47	GND
48	FP22
49	FP23
50	GND

D.6. KEYBOARD/SPEAKER CONNECTOR (J7)

Pin Number	Signal
1	KB:CLK
3	KB:DATA
5	VCC
7	SPEAKER
9	N.C.
11	DOWNLD#
13	PBRES#
15	IDE:ACT#

Top View

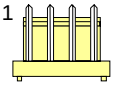


Pin Number	Signal
2	GND
4	GND
6	VCC
8	VCC
10	GND
12	GND
14	GND
16	VCC

D.7. PS/2 MOUSE HEADER (J8)

Signal	Pin Number
MOUSE:CLOCK	1
GND	2
MOUSE:DATA	3
VCC	4

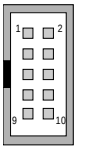
Front View



D.8. DUAL USB CONNECTOR (J9)

Signal	Pin Number
USB0:VCC	1
USB0:DATA-	3
USB0:DATA+	5
USB0:GND	7
GND	9

Top View

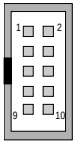


Pin Number	Signal
2	USB1:VCC
4	USB1:DATA-
6	USB1:DATA+
8	USB1:GND
10	GND

D.9. SERIAL PORT 1 CONNECTOR (J10)

Signal	Pin Number
DCD	1
RXD	3
TXD	5
DTR	7
GND	9

Top View



Pin Number	Signal
2	DSR
4	RTS
6	CTS
8	RI
10	N.C.

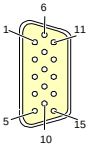
D.10.VIDEO CONNECTOR (J11)

Signal	
RED	1
GREEN	2
BLUE	3
N.C.	4
GND	5

Signal	
Analog GND	6
Analog GND	7
Analog GND	8
N.C.	9
GND	10

Signal	
N.C.	11
SDATA	12
HSYNC	13
VSYNC	14
SCLK	15

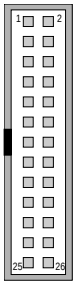
Top View



D.11.PARALLEL PORT CONNECTOR (J12)

Pin Number	
Signal	
STB#	1
D0	3
D1	5
D2	7
D3	9
D4	11
D5	13
D6	15
D7	17
ACK#	19
BUSY	21
PE	23
SLCT	25

Top View

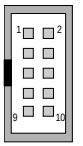


Pin Number	
	Signal
2	ALF#
4	ERR#
6	INIT#
8	SLCTIN#
10	GND
12	GND
14	GND
16	GND
18	GND
20	GND
22	GND
24	GND
26	GND

D.12.SERIAL PORT 2 CONNECTOR – RS-232/RS-422 (J13)

Pin Number		
Signal		
(RS-422)	*(RS-232)*	
RSV	DCD	1
RX (-)	RXD	3
TX (-)	TXD	5
RSV	DTR	7
GND	GND	9

Top View

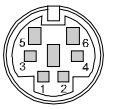


Pin Number		
	Signal	
	(RS-232)	*(RS-422)*
2	DSR	RSV
4	RTS	RX (+)
6	CTS	TX (+)
8	RI	RSV
10	N.C.	N.C.

D.13.PS/2 MOUSE CONNECTOR (J15)

Pin Number	
Signal	
MOUSE:DATA	1
N.C.	2
GND	3
VCC	4
MOUSE:CLK	5
N.C.	6

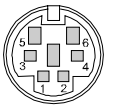
Front View



D.14.PS/2 KEYBOARD CONNECTOR (J16)

Signal	Pin Number
KB:DATA	1
N.C.	2
GND	3
VCC	4
KB:CLK	5
N.C.	6

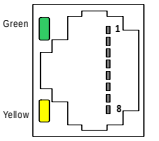
Front View



D.15.ETHERNET CONNECTOR (J17)

Signal	Pin Number
TX+	1
TX-	2
RX+	3
N.C.	4
N.C.	5
RX-	6
N.C.	7
N.C.	8

Top View



D.16.EXTERNAL POWER CONNECTOR (J18)

Signal
VCC
GND
-12V

Top View



Signal
VCC
GND
+12V

D.17.FAN HEADER (J19)

Signal	Pin Number
VCC	1
GND	2

Front View



D.18.EXTERNAL BATTERY HEADER (J20)

Pin Number	
Signal	
EXT_BATT	1
GND	2
EXT_BATT	3

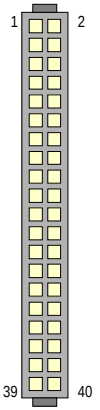
Front View



D.19.IDE COMPACTFLASH CONNECTOR (P3)

Pin Number	
Signal	
D11	1
D12	3
D13	5
D14	7
D15	9
CS1#	11
DMACK#	13
DMARQ	15
PDIAG#	17
IRQ15	19
VCC	21
GND	23
RESET#	25
CSEL	27
A1	29
A0	31
D0	33
D1	35
D2	37
IOCS16#	39

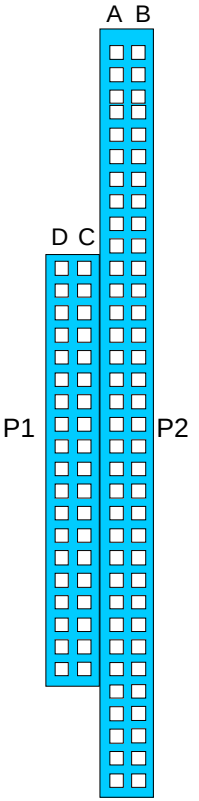
Top View



Pin Number	
	Signal
2	GND
4	D3
6	D4
8	D5
10	D6
12	D7
14	CS0#
16	IOR#
18	IOW#
20	VCC
22	VCC
24	GND
26	GND
28	A2
30	DASP#
32	IORDY
34	D8
36	D9
38	D10
40	GND

D.20.PC/104 CONNECTORS (P1/P2)

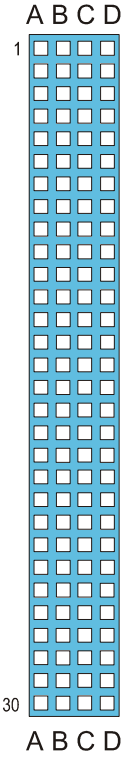
P1		
	D	C
0	GND	GND
1	MEMCS16#	SBHE#
2	IOCS16#	LA23
3	IRQ10	LA22
4	IRQ11	LA21
5	IRQ12	LA20
6	IRQ15	LA19
7	IRQ14	LA18
8	DACK0#	LA17
9	DRQ0	MEMR#
10	DACK5#	MEMW#
11	DRQ5	SD8
12	DACK6#	SD9
13	DRQ6	SD10
14	DACK7#	SD11
15	DRQ7	SD12
16	VCC	SD13
17	MASTER#	SD14
18	GND	SD15
19	N.C.	GND



P2		
A	B	
IOCHK#	GND	1
SD7	RESET DRV	2
SD6	VCC	3
SD5	IRQ9	4
SD4	-5V	5
SD3	DRQ2	6
SD2	-12V	7
SD1	0WS#	8
SD0	+12V	9
IOCHRDY	GND	10
AEN	SMEMW#	11
SA19	SMEMR#	12
SA18	IOW#	13
SA17	IOR#	14
SA16	DACK3#	15
SA15	DRQ3	16
SA14	DACK1#	17
SA13	DRQ1	18
SA12	REFRESH#	19
SA11	SYSCLK	20
SA10	IRQ7	21
SA9	IRQ6	22
SA8	IRQ5	23
SA7	IRQ4	24
SA6	IRQ3	25
SA5	DACK2#	26
SA4	T/C	27
SA3	BALE	28
SA2	VCC	29
SA1	OSC	30
SA0	GND	31
GND	GND	32

D.21.PC/104-*PLUS* CONNECTOR (P4)

	A	B	C	D	
1	5V_KEY	N.C.	VCC	AD00	1
2	VI/O (5V)	AD02	AD01	VCC	2
3	AD05	GND	AD04	AD03	3
4	C/BE0#	AD07	GND	AD06	4
5	GND	AD09	AD08	GND	5
6	AD11	VCC	AD10	N.C.	6
7	AD14	AD13	GND	AD12	7
8	+3.3V	C/BE1#	AD15	+3.3V	8
9	SERR#	GND	SB0#	PAR	9
10	GND	PERR#	+3.3V	SDONE	10
11	STOP#	+3.3V	LOCK#	GND	11
12	+3.3V	TRDY#	GND	DEVSEL#	12
13	FRAME	GND	IRDY#	+3.36V	13
14	GND	AD16	+3.3V	C/BE2#	14
15	AD18	+3.3V	AD17	GND	15
16	AD21	AD20	GND	AD19	16
17	+3.3V	AD23	AD22	+3.3V	17
18	IDSEL0	GND	IDSEL1	IDSEL2	18
19	AD24	C/BE3#	VCC	IDSEL3	19
20	GND	AD26	AD25	GND	20
21	AD29	VCC	AD28	AD27	21
22	VCC	AD30	GND	AD31	22
23	REQ0#	GND	REQ1#	VCC	23
24	GND	REQ2#	VCC	GNT0#	24
25	GNT1#	VCC	GNT2#	GND	25
26	VCC	CLK0	GND	CLK1	26
27	CLK	VCC	CLK3	GND	27
28	GND	INTD#	VCC	RST#	28
29	+12V	INTA#	INTB#	INTC#	29
30	-12V	N.C.	N.C.	GND	30



Active Low Signal

E. BIOS SETUP ERROR CODES

E.1. POST BEEP

POST beep codes are defined in the BIOS to provide low level tone indication when an error occurs during the BIOS initialization.

Beep codes consist of a combination of long and short beeps. They are described as follows:

Beep Codes

Post code	Beep Code	Description
41	**-*	Entering the boot block recovery code (i.e. Main BIOS checksum error)
22	*-*-*	Error when getting the boot block flash ID code
33	*-*-*-*	Error when erasing the boot block flash
44	*-*-*-*-*	Error when programming the boot block flash
55	*-*	Success of the boot block recovery code. The board is ready to be manually reset.

LEGEND

Symbol	Description
*	1 Beep code
-	Silence

E.2. POST MESSAGES

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

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

"PRESS F1 TO CONTINUE, DEL TO ENTER SETUP".

E.3. ERROR MESSAGES

One or more of the following messages may be displayed if the BIOS detects an error during the POST. This list includes messages for both the ISA and EISA BIOS.

CMOS BATTERY HAS FAILED

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

CMOS CHECKSUM ERROR

Checksum of CMOS is incorrect. This can indicates that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.

DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER

No boot device was found. This could mean either a boot drive was not detected or the drive does not contain proper system boot files. Insert a system disk into Drive A and press Enter. If you assumed the system would boot from the hard drive, make sure the hard drive is installed correctly and all cables are properly attached. Also be sure the disk is formatted as a boot device. Then reboot the system.

DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP

Type of diskette drive installed in the system is different from CMOS definition. Run Setup to reconfigure the drive type correctly.

DISPLAY SWITCH IS SET INCORRECTLY

Display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, and then either turn off the system and change the jumper, or enter Setup and change the VIDEO selection.

DISPLAY TYPE HAS CHANGED SINCE LAST BOOT

Since last powering off the system, the display adapter has been changed. You must configure the system for the new display type.

ERROR ENCOUNTERED INITIALIZING HARD DRIVE

Hard drive cannot be initialized. Be sure the adapter is installed correctly and all cables are correctly and firmly attached. Also be sure the correct hard drive type is selected in Setup.

ERROR INITIALIZING HARD DRIVE DISK CONTROLLER

Cannot initialize controller. Make sure the cable is correctly connected. Be sure the correct hard drive type is selected in Setup. Also check to see if any jumper needs to be set correctly on the hard drive.

FLOPPY DISK CNTRLR ERROR OR NO CNTRLR PRESENT

Cannot find or initialize the floppy drive controller. Make sure the floppy disk is correctly connected. If there are no floppy drives installed, be sure the Disk Drive selection in Setup is set to NONE.

KEYBOARD ERROR OR NO KEYBOARD PRESENT

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

If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause BIOS to ignore the missing keyboard and continue the boot.

MEMORY ADDRESS ERROR AT ...

Indicates a memory address error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

MEMORY PARITY ERROR AT ...

Indicates a memory parity error at a specific location. This location can be used to locate a bad memory module.

MEMORY SIZE HAS CHANGED SINCE LAST BOOT

Memory has been added or removed since the last boot.

MEMORY VERIFY ERROR AT ...

Indicates an error during the memory verification.

OFFENDING SEGMENT

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem cannot be isolated.

PRESS A KEY TO REBOOT

This will be displayed on the screen when an error occurs that requires you to reboot. Press any key and the system will reboot.

PRESS F1 TO DISABLE NMI, F2 TO REBOOT

When BIOS detects a Non-maskable Interrupt condition during boot, this will allow you to disable the NMI and continue to boot, or you can reboot the system with the NMI enabled.

RAM PARITY ERROR - CHECKING FOR SEGMENT ...

Indicates a parity error in Random Access Memory.

E.4. POST CODES

> **NOTE**
>
> ISA POST codes are output to port address 80h.

POST Codes

POST (hex)	Name	Description
C0	Turn Off Chipset Cache	OEM Specific-Cache control
01	Processor Test 1	Processor Status (1FLAGS) Verification. Tests the following processor status flags: Carry, zero, sign, overflow. The BIOS will set each of these flags, verify they are set, then turn each flag off and verify it is off.
02	Processor Test 2	Read/Write/Verify all CPU registers except SS, SP, and BP with data pattern FF and 00.
03	Initialize Chips	Disable NMI, PIE, AIE, UEI, SQWV. Disable video, parity checking, DMA. Reset math coprocessor. Clear all page registers, CMOS shutdown byte. Initialize timer 0, 1, and 2, including set EISA timer to a known state. Initialize DMA controllers 0 and 1. Initialize interrupt controllers 0 and 1. Initialize EISA extended registers.
04	Test Memory Refresh Toggle	RAM must be periodically refreshed in order to keep the memory from decaying. This function assures that the memory refresh function is working properly.
05	Blank video, Initialize keyboard	Keyboard controller initialization.
06	Reserved	
07	Test CMOS Interface and Battery Status	Verifies CMOS is working correctly, detects bad battery.
BE	Chipset Default Initialization	Program chipset registers with power on BIOS defaults.
C1	Memory presence test	OEM Specific-Test to size on-board memory.
C5	Early Shadow	OEM Specific-Early Shadow enable for fast boot.
C6	Cache presence test	External cache size detection.
08	Setup low memory	Early chip set initialization. Memory presence test. OEM chip set routines. Clear low 64K of memory. Test first 64K memory.
09	Early Cache Initialization	Cyrix CPU initialization. Cache initialization.
0A	Setup Interrupt Vector Table	Initialize first 120 interrupt vectors with SPURIOUS_INT_HDLR and initialize INT 00h-1Fh according to INT_TBL.
0B	Test CMOS RAM Checksum	Test CMOS RAM Checksum, if bad, or insert key pressed, load defaults.
0C	Initialize keyboard	Detect type of keyboard controller (optional). Set NUM LOCK status.

...

0D	Initialize Video Interface	Detect CPU clock. Read CMOS location 14h to find out type of video in use. Detect and Initialize Video Adapter.
0E	Test Video Memory	Test video memory, write sign-on message to screen. Setup shadow RAM - Enable shadow according to Setup.
0F	Test DMA Controller 0	BIOS checksum test. Keyboard detect and initialization.
10	Test DMA Controller 1	
11	Test DMA Page Registers	Test DMA Page Registers.
12-13	Reserved	
14	Test Timer Counter 2	Test 8254 Timer 0 Counter 2.
15	Test 8259-1 Mask Bits	Verify 8259 Channel 1 masked interrupts by alternately turning off and on the interrupt lines.
16	Test 8259-2 Mask Bits	Verify 8259 Channel 2 masked interrupts by alternately turning off and on the interrupt lines.
17	Test Stuck 8259's Interrupts Bits	Turn off interrupts then verify no interrupt mask register is on.
18	Test 8259 Interrupt Functionality	Force an interrupt and verify the interrupt occurred.
19	Test Stuck NMI Bits (Parity/IO Check)	Verify NMI can be cleared.
1A		Display CPU clock
1B-1F	Reserved	
20	Enable Slot 0	Initialize slot 0 (System Board).
21-2F	Enable Slots 1-15	Initialize slots 1 through 15.
30	Size Base and Extended Memory	Size base memory from 256KB to 640KB and extended memory above 1 MB.
31	Test Base and Extended Memory	Test base memory from 256KB to 640KB and extended memory above 1 MB using various patterns. NOTE: This will be skipped in ISA mode and can be « skipped » with ESC key in EISA mode.
32-3B	Reserved	
3C	Setup Enabled	
3D	Initialize & Install Mouse	Detect if mouse is present, initialize mouse, install interrupt vectors.
3E	Setup Cache Controller	Initialize Cache controller.
3F	Reserved	
BF	Chipset Initialization	Program chipset registers with Setup values.
40		Display virus protect disable or enable
41	Initialize Floppy Drive & Controller	Initialize floppy disk drive controller and any drives.
42	Initialize Hard Drive & Controller	Initialize hard drive controller and any drives.
43	Detect & Initialize Serial/Parallel Ports	Initialize any serial and parallel ports (also game port).
44	Reserved	
45	Detect & Initialize Math Coprocessor	Initialize math coprocessor
46-4D	Reserved	
4E	Manufacturing POST Loop or Display Messages	Reboot if Manufacturing POST Loop pin is set. Otherwise display any messages (i.e., any non-fatal errors that were detected during POST) and enter Setup.

•••

4F	Security Check	Ask password security (optional).
50	Write CMOS	Write all CMOS values back to RAM and clear screen.
51	Pre-boot Enable	Enable parity checker. Enable NMI, Enable Cache before boot.
52	Initialize Option ROMs	Initialize any option ROMs present from C8000h to EFFFFh. Note: When FSCAN option is enabled, will initialze from C8000h to F7FFFh.
53	Initialze Time Value	Initialize time value in 40h: BIOS area.
60	Setup Virus Protect	Setup virus protect according to Setup.
61	Set Boot Speed	Set system speed for boot.
62	Setup NumLock	Setup NumLock status according to Setup.
63	Boot Attempt	Set low stack. Boot via INT 19h.
B0	Spurious	If interrupt occurs in protected mode.
B1	Unclaimed NMI	If unmasked NMI occurs, display: Press F1 to disable NMI, F2 reboot.
E1-EF	Setup Pages	E1 - Page 1, E2 - Page 2, etc.
FF	Boot	

F. EMERGENCY PROCEDURE

Follow this procedure only in case of emergency such as a critical error occurred during the Boot Block Flash BIOS update (when using UBIOS utility program or saving the AWARD parameters into the flash memory) or if you meet one of the following symptoms at anytime:

1. No POST code on a power up (when using a POST card).
2. System stops at POST 41(when using a POST card) and associated beep code is generated (Refer to Section E.1).
3. Board does not boot, even after following all the usual verifications: cables, power, bootup diskette.

F.1. EMERGENCY PROCEDURE

The Emergency Procedure is described as follows:

1. Remove the battery jumper (see Section 2 - *Jumper Settings*) to reset the CMOS values.
2. Disable the Power Fail Monitoring function (W9 removed).
3. Ensure the Supervisor I/O base address is set to 190h (see BIOS Setup Program).
4. Connect a 1.44MB floppy drive (drive A) to the board, and insert the EMERGENCY diskette in it.
5. Power on the board. (Note that no VGA is present during this procedure.)
6. The Boot Block Flash update will be completed when the POST code 55 is displayed (when using a POST card) or the associated beep code sounds (see Section E-1).
7. After the procedure is successfully completed, power down the board, install the battery and Power Fail Monitoring jumpers and power up the board. Be aware to restore the I/O base address as it was previously

   The Boot Block Flash BIOS should be correctly programmed and the system should run properly.



NOTE

The preparation of an Emergency Diskette is described in Section F.2 - *Generate an Emergency Floppy Diskette*.

F.2. GENERATE AN EMERGENCY FLOPPY DISKETTE

Use a system that has a 1.44 Mbytes floppy drive A.

1. Insert the EMERGENCY diskette in drive A.
2. Copy the two files WDISK.COM and EMERDISK.TEK from drive A: to your hard drive (those files are available in your diskette package).
3. Remove the EMERGENCY diskette and insert a DOS formatted floppy diskette in drive A.
4. At the DOS prompt of your hard drive (same path of the two files WDISK.COM and EMERDISK.TEK), type WDISK EMERDISK.TEK then press Enter.
5. The program may display one of the following messages:

"Emergency Code transferred"

The emergency diskette has been successfully created. Take the appropriate actions and restart from the step 4) when you see the following messages.

"Write to disk failure!"

Verify if your floppy diskette is write-protected.

"The file to program in flash was not found"

Be sure that EMERDISK.TEK file is in your current path.

"Unable to read the binary file" or "Unable to close the opened file"

Possible floppy diskette corruption or bad data transfer between floppy disk and host system.

"Unable to allocate a memory block of 256 Kbytes"

Not enough memory to run the WDISK program.

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616 Cure Boivin

Boisbriand, Quebec

J7G 2A7 CANADA

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We ("the seller") warrant our boards to be free from defects in material and workmanship for a period of two (2) years commencing on the date of shipment. The liability of the seller shall be limited to replacing or repairing, at the seller's option, any defective units. Equipment or parts which have been subject to abuse, misuse, accident, alteration, neglect, or unauthorized repair are not covered by this warranty. This warranty is in lieu of all other warranties expressed or implied.

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2) Give the serial number found on the back of the board and explain the nature of your problem to a service technician.

3) If the problem cannot be solved over the telephone, the technician will further instruct you on the return procedure.

4) Prior to returning any merchandise, make certain you receive an RMA # from our Technical Support and clearly mark this number on the outside of the package you are returning. To request a number, follow these steps: make a copy of the request form on the following page, fill it out and fax it to us.

5) When returning goods, please include the name and telephone number of a person whom we can contact for further explanations if necessary. **Where applicable, always include all duty papers and invoice(s) associated with the item(s) in question.**

6) When returning a board:

   i) Make certain that the board is properly packed: Place it in an antistatic plastic bag and pack it in a rigid cardboard box.

   ii) Ship prepaid to (but not insured):

Kontron Inc.

616 Cure Boivin

Boisbriand, Quebec

J7G 2A7 CANADA

RETURN TO MANUFACTURER AUTHORIZATION REQUEST

Contact Name	:			
Company name	:			
Street Address	:			
City	:		Province/State	:
Country	:		Postal/Zip Code	:
Phone Number	:		Extension	:
Fax Number	:			

Serial Number	Failure or Problem Description	P.O.# (if not under warranty)

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