VIPer826

Half-Size ISA Industrial SBC

Technical Reference Manual
Version 1.2, June 2002

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

kontron
www.kontron.com

Ref. : M826_TECH

Historical

Rel.	Date	Comments
1.0	N/A	Initial document release.
1.1	May 1999	N/A
1.2	May 13,2002	- Replace all Teknor occurences by Kontron. - Update to Kontron Logo. - Add a link to the FTP site. - Appendix, section D.18, J19, pin 2, 3 and 5 added " / " (active low) - Appendix, section D.19, J20, pin 2, 3 and 5 added " / " (active low)

READ ME FIRST

Your computer board is equipped with a standard non-rechargeable lithium battery. To preserve the useful life of the battery, **the jumper which enables the battery is not installed when you receive the board**. If you need a jumper cap, we suggest you use the one on the Watchdog Timer jumper since it is rarely needed; if you wish to purchase jumper caps, you can contact KONTRON's Sales department to order them.

EXERCISE CAUTION WHILE REPLACING LITHIUM BATTERY

WARNING

Danger of explosion if 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.

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 constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabriquant.

ACHTUNG

Explosionsgefahr bei falschem Batteriewechsel.

Verwenden Sie nur die empfohlenen Batterietypen des Herstellers. Entsorgen Sie die verbrauchten Batterien laut Gebrauchsanweisung 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.

Video BIOS

The board supports many different types of Flat Panel displays. KONTRON has fully tested a number of these panels and provides all the BIOS software support and the technical information needed.
If you have access to the Internet, many video BIOS and related interconnection charts are available on our web site. You can download these files, if you are a customer of KONTRON and have a password from KONTRON. If you do not have your password, contact KONTRON's Technical Support to obtain it.
Our address is: http://www.Kontron.com .

Powering up the system

If you should encounter a problem, verify the following items:

- Make sure that all connectors are properly connected.
- Verify your boot diskette.
- If the system still does not start up properly, you should try booting your system with only the power cord and video monitor connected to the board (this is the minimum required to see if the board is working).
- If you still are not able to start up your system, please refer to the Emergency Procedure in the Appendix Section.
- If you still are not able to get your board up and running, contact our Technical Support department for assistance.

Preventing Viruses

KONTRON INDUSTRIAL COMPUTERS takes every precaution against computer viruses. For your protection, we have *safety sealed* all utility diskettes. If the seal is broken, **do not use the diskette**. Destroy the diskette immediately and contact our Technical Support department for further instructions at (450) 437-5682 (Canada).

To safeguard against computer viruses in general, do not freely lend your utility diskettes and regularly perform virus scans on all your computer systems.

BIOS Upgrade and Automatic CPLD Hardware Upgrade

During the first system bootup after you update the Boot Block Flash BIOS with the UPGBIOS utility, the BIOS may need to upgrade the CPLD devices. **In such a case, do not interrupt the system in any way (power down, reset, mouse or keyboard functions). The devices will be damaged and your board rendered inoperative if you disturb the CPLD hardware upgrade process!**

If your device upgrade was successful, the following message is displayed under the "Status:" line prior to rebooting:

```
Update complete successfully, wait for the automatic reboot.

Rebooting in 5 second(s).
```

If the update is not successful, the following message appears under the "Status:" line:

```
ERROR: general failure programming CPLDs!

Please contact Kontron Industrial Computers technical support.
```

You must contact KONTRON's technical support for further instructions.

CPU Voltage

Faulty jumper settings will damage the CPU.
Please refer to the Jumper Setting section, if you need to install or replace the processor.

Adapter Cables

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

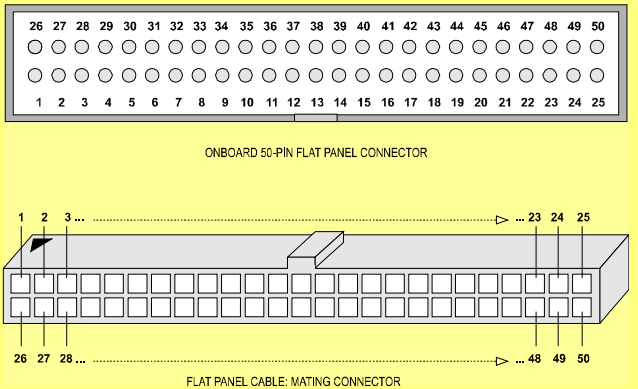
Flat Panel Power

The board supplies the Flat Panel with sequenced 5V or 3.3V power. The power supply selection is performed through jumper W3.
Make sure you select the correct power voltage for your Flat Panel.

Incorrect power voltage can damage your Flat Panel!

20-pin High Density Flat Panel Connector

The J8 Flat Panel connector found on the VIPer821 is a 50-pin high density connector, which has a different pinout than most dual row headers. The pin numbers are shown below.



In the same way, the mating connector on the Flat Panel Cable (KONTRON # 150-105), has the same linear pinout, as shown above. Two 25-pin flat cables are crimped to this connector: one cable has pins 1 to 25, while the other cable has pins 26 to 50.

Flat Panel cable Length

The flat panel cable length for the SBC should be cut on the unconnected end to a recommended maximum length of 18 inches from the high-density connector. Though some Flat Panels may support longer flat cables, and KONTRON has made allowance for this by providing more than 18 inches of cable, it is the customer's responsibility to ensure that the additional length is fully supported by the Flat Panel's specifications.

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PRODUCT DESCRIPTION

1. PRODUCT OVERVIEW
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3. FEATURES DESCRIPTION

1. PRODUCT OVERVIEW

The VIPer 826 is half-size PC/AT card format Single Board Computer which introduces an innovative architecture in board design by using the MMX Enhanced MediaGX processor from Cyrix.
The VIPer 826 conforms to its reputation and acronym of Very Integrated Processor by supporting the MediaGX which merges graphics, memory control and the PCI interface right into the CPU. Video and sound processor, and memory control hardware do not appear on the board any more.

As a result, the board performs more efficiently. It eliminates the existing bottleneck between a conventional processor and the other components while the data transfer operates at only half the speed of the processor, or even less.

The very high level of integration of the processor is not Socket 7 compatible: **Pentium processors are not supported on the VIPer 826 board**.

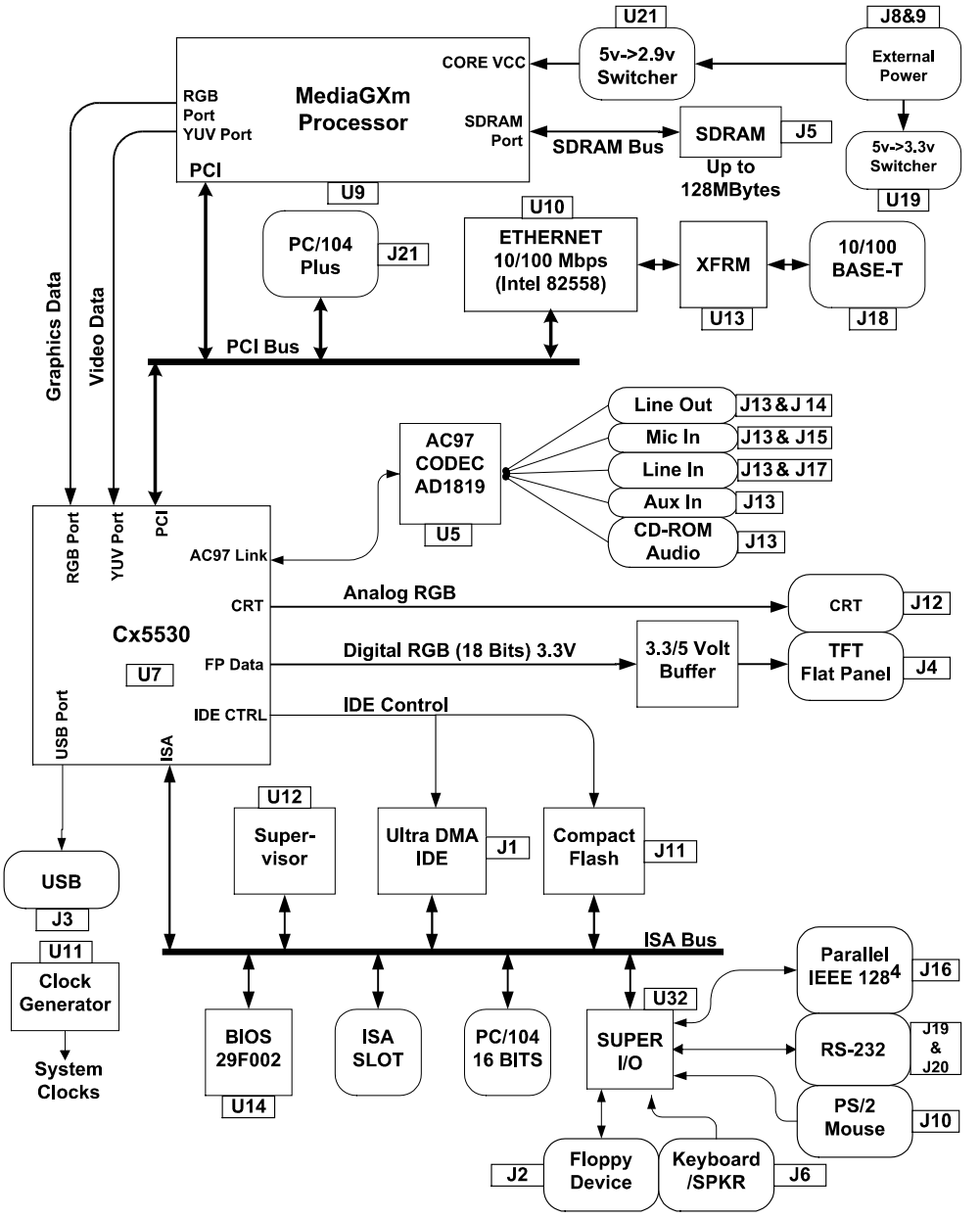
Along with compatible MMX technology, the VIPer 826 is compliant with MPEG-1, Microsoft® PC97 and AC97.

The processor is Windows® compatible and is totally transparent to all software applications.

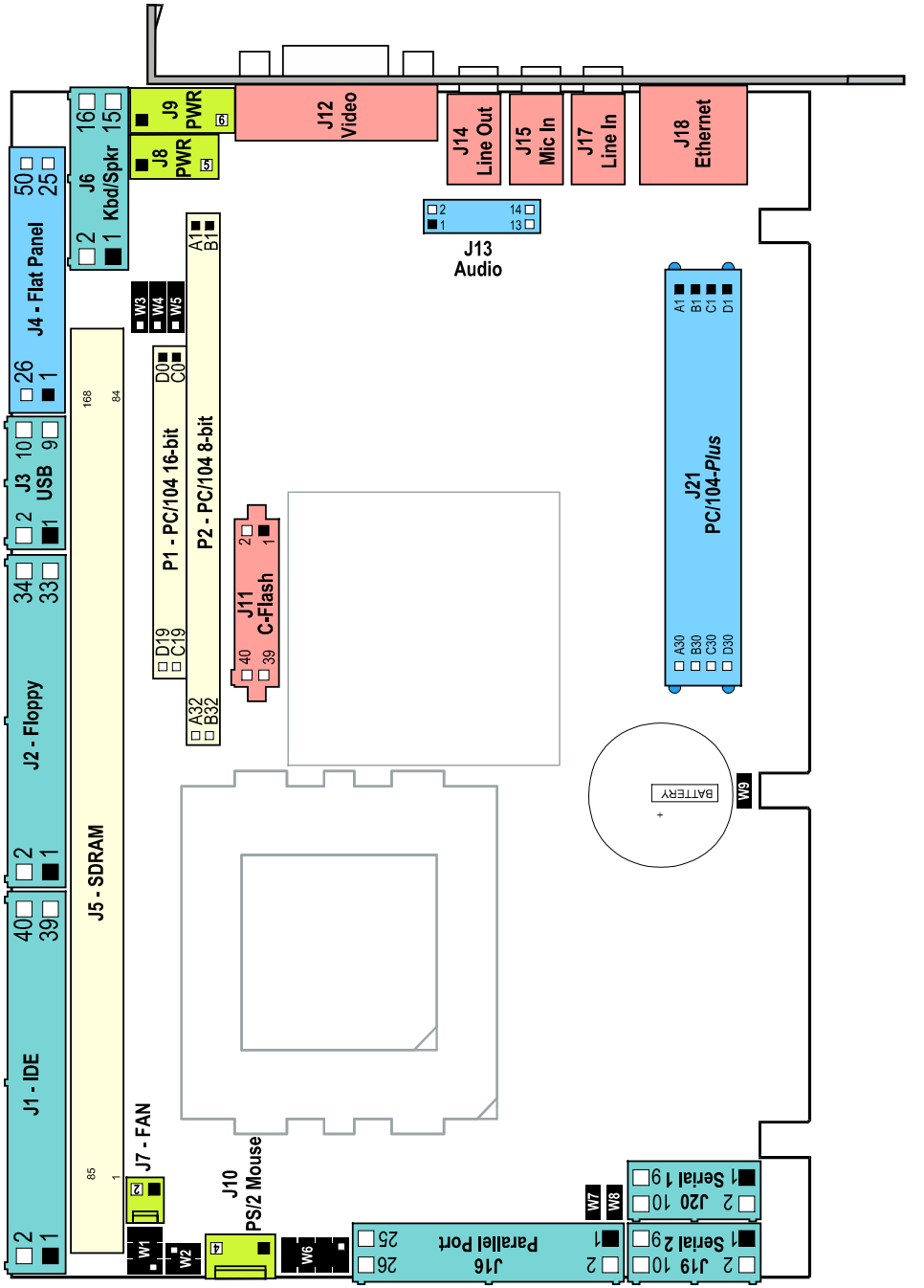
The major advantages of the board are summarized below:

- 64-bit x86, MMX processor at 233, 266 and 300MHz, with 16KB unified L1 cache.
- PC/AT bus or stand-alone operation.
- Up to 30% of power consumption reduction when compared to boards that support non-integrated processor.
- Support up to 128MB of 66MHz unbuffered SDRAM on one 168-pin DIMM socket.
- 256KB Boot Block Flash BIOS.
- Built-in VGA CRT and TFT flat panel display controller running at the CPU core speed, using the system memory for video buffer (unified memory architecture).
- Built-in 16-bit stereo sound interface.
- One Enhanced IDE hard disk interface supporting Bus Mastering Ultra DMA/33.
- Optional 10Base-T/100Base-TX Ethernet interface.
- Two USB ports.
- Integrated standard system I/O including one multiple mode parallel port, two serial ports, floppy disk controller, real-time clock with battery backup, keyboard and mouse controller.
- PC/104 Plus expansion interface
- Bootable IDE compatible CompactFlash disk using the CompactFlash module.

VIPer826 – Block Diagram



VIPer826 – Connector and Jumper Location



2. JUMPER SETTINGS

Jumper Settings must conform to the following:

VIPer 826 - CPU Related Jumpers

WARNING
The MediaGX processor is not pin compatible (signals and pinout) with the Pentium's family processors.
Do not attempt to insert a Pentium processor on the board. This will damage both your processor and your board.

W1, W6 - CPU Model

MediaGX processor Vcore = 2.9V	W1			W6			
	1-2	3-4	5-6	1-2	3-4	5-6	7-8
200MHz (6x)	off	on	off	on	off	off	on
233MHz (7x)	off	off	on	on	off	off	on
266MHz (8x)	off	off	off	on	off	off	on
300MHz (9x)	on	off	on	on	off	off	on

W1: Clock Multip.

W6: Vcore

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

The other jumpers are described below:

<table>
<tr><th>NAME</th><th>FUNCTION</th><th>CONFIGURATION (INITIAL SETTING: *)</th></tr>
<tr><td>W2</td><td>VT-100</td><td> 

<table>
<tr><th colspan="3">W2 - VT-100 Mode</th></tr>
<tr><td></td><td>1-2</td><td>3-4</td></tr>
<tr><td>Enabled</td><td>on</td><td rowspan="2">User Reserved</td></tr>
<tr><td>Disabled *</td><td>off</td></tr>
</table></td></tr>
<tr><td>W3</td><td>Flat Panel</td><td> 

<table>
<tr><th colspan="2">W3 - Flat Panel Voltage Level</th></tr>
<tr><td>5V signal/power level *</td><td>1-2</td></tr>
<tr><td>3.3V signal/power level</td><td>2-3</td></tr>
</table></td></tr>
<tr><td>W4</td><td>Battery</td><td> 

<table>
<tr><th colspan="2">W4 - Battery</th></tr>
<tr><td>Internal Battery</td><td>1-2</td></tr>
<tr><td>External Battery *</td><td>2-3</td></tr>
<tr><td>Battery Disconnected</td><td>off</td></tr>
</table>

</td></tr>
<tr><td>W5</td><td>Power Fail</td><td> 

<table>
<tr><th colspan="2">W5 - Power Fail Detection</th></tr>
<tr><td>External</td><td>1-2</td></tr>
<tr><td>V Batt (3.08V) *</td><td>2-3</td></tr>
</table></td></tr>
<tr><td>W7, W8</td><td>Serial Port 2 Termination</td><td> 

<table>
<tr><th colspan="3">W7, W8 - Serial Port 2 Termination</th></tr>
<tr><td>(set in RS-485 Mode only)</td><td>W7</td><td>W8</td></tr>
<tr><td>Termination Enabled</td><td>on</td><td>on</td></tr>
<tr><td>Termination Disabled *</td><td>off</td><td>off</td></tr>
</table></td></tr>
<tr><td>W9</td><td>Watchdog</td><td> 
<table>
<tr><th colspan="2">W9 - Watchdog Timer</th></tr>
<tr><td>Enabled</td><td>on</td></tr>
<tr><td>Disabled</td><td>off</td></tr>
</table></td></tr>
</table>

3. FEATURE DESCRIPTION

The VIPer 826 is built around the MMX Enhanced MediaGX processor and its I/O companion chip (Cx5530). It take advantage of the full features of the MediaGX processor, and manages and increases multimedia performance by handling three system functions of the MediaGX processor:

XpressRAM™

The XpressRAM™ technology avoids the delay of data moving between the external cache and the system memory. With the memory controller integrated onto the processor, data lookups move directly to the SDRAM and back to the CPU, eliminating the external cache. The memory performance is optimized as the board carries the advantages of the SDRAM technology.

XpressGRAPHICS™

The XpressGRAPHICS™ feature processes graphics locally with the processor and allows operations at the full clock speed of the CPU.

A graphics compression scheme with high-speed buffering allows flexibility in memory configuration. The monitor resolution can be selected at the Windows level and the board will automatically apply the setup at the component level. The VIPer 826 supports up to 1280x1024, 8 bits per pixel resolution, which is commonly required in multimedia applications.

With the XpressGRAPHICS™, there is no need to worry about having enough video memory. The board adjusts itself for the resolution you choose. This means that graphics power will be there to run all the MMX applications without the purchase of additional video memory.

XpressAUDIO™

The XpressAUDIO™ technology integrates sound operations into the processor set. It is compatible with industry-standard sound cards, and generates all sound directly from the processor set to deliver high-fidelity audio performance.

233MHz, 266MHz, and 300MHz MediaGX processors are supported. The processor and its cooling system are factory installed, and the relative jumpers are set according to the CPU specification.

SETUPS

Related Jumpers

To configure the board for another MediaGX processor, use the **W1** and **W6** jumpers to setup respectively the clock multiplier and the core voltage.

Jumper settings and location are described in the next 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 U9 connector. Insert carefully the processor into its socket, and ensure 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 cooling fan must be powered through the J7 Power header.

MORE ...

Processors supported by the VIPer 826 are specified as follows:

Processor	Clk Multiplier.	Vcore
MediaGX 233	7x	2.9V
MediaGX 266	8x	2.9V
MediaGX 300	9x	2.9V

CPU/SYSTEM CORE - Memory

One vertical DIMM socket (168-pin) is provided to support from 8MB to 128MB of system memory.

SETUPS

Related Jumpers

No jumper setting is required.

BIOS Level

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

MAKING CONNECTIONS

The memory module must be installed in the J5 DIMM socket.

2Mx64, 4Mx64, 8Mx64 and 16Mx64 memory configurations are supported

MORE ...

The system memory must conform to the following:

. Single-sided or double-sided unbuffered Synchronous DRAM (SDRAM) module

. 3.3V, 66MHz standard

. Parity and/or ECC is not supported

The board is installed with a 3.6V, 370mAh lithium battery (22.5x5.6mm, wafer form factor with plug-in terminations).

SETUPS

Related Jumpers

To enable onboard CMOS backup, connect the battery to the board's circuitry by setting the **W4** jumper to 1-2 position (onboard Battery).

Jumper settings and location are described in the next 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: **W4** in position 2-3 (External Battery).

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

MORE ...

The internal or external battery can be supervised through the onboard Power Fail Detection function (battery voltage drops below 3.08V) using the **W5** jumper.

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

ETHERNET INTERFACE

The 10Base-T/100Base-TX Ethernet interface controller 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

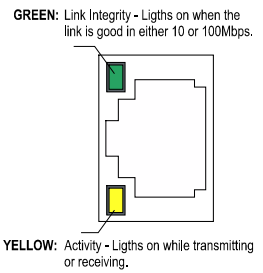
No jumper setting is required.

BIOS Level

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

Bootup from LAN option is available at the BIOS level, *BIOS Features* option

MAKING CONNECTIONS



The communication link plugs into the J18 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 amber) 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 82S557/558, 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.

Connections for speaker, reset and user switches, and hard drive activity LED are available through the Kdb/Spk/IO J6 connector. Signals can be issued using the keyboard cable: #150-018-01, provided with the board.

SETUPS

Related Jumpers

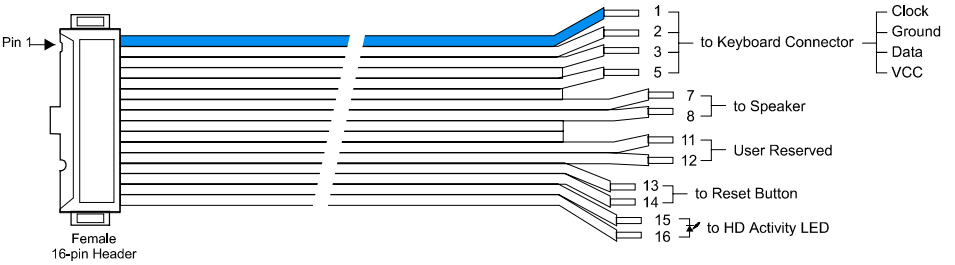
No jumper setting is required.

BIOS Level

No BIOS setup is required.

MAKING CONNECTIONS

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



MORE ...

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

The User Reserved input is available on pin 11. It is connected through an onboard 10 KOhm pull-up resistor.

The status of the User Input is available through bit 4 at the address 191h (or 291h or 391h, depending on the Supervisor I/O Base Address selected the BIOS – *Chipset Features*).

The User Input is also connected to pins 3-4 of the W2 jumper. To avoid a hardware conflict when connecting an external device through the J6 connector, the jumper must be removed.

I/O DEVICES - Keyboard

Connections for keyboard, speaker, download and reset switches, and hard drive activity LED are available through the J6 Keyboard/Speaker connector, using a keyboard cable (#150-018-01, provided with the board).

SETUPS

Related Jumpers

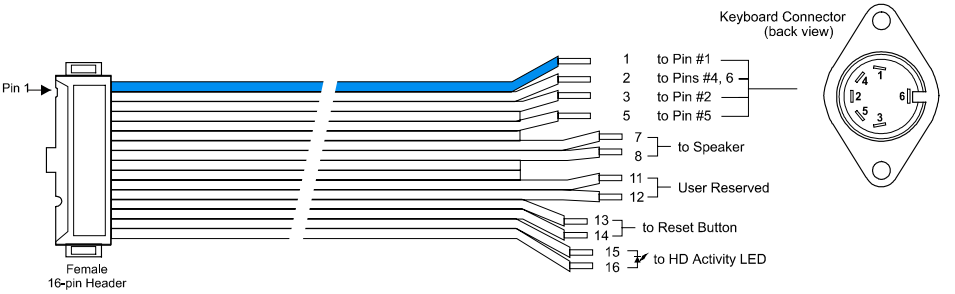
No jumper settings are required.

BIOS Level

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

MAKING CONNECTIONS

The usual way to connect a keyboard is to issue signals a standard AT keyboard connector using the #150-018-01 keyboard cable provided with your board. It is described below:



MORE ...

The standard AT keyboard can be replaced by a USB keyboard: the USB keyboard support must be declared at the BIOS level (*Chipset Feature* option). This option applies only at the DOS and BIOS level.

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

The PS/2 mouse connects to the VIPer 826 through the J10 header using a 4-pin header/Mini DIN PS/2 Mouse cable (referred at KONTRON to as #150-337-00).

SETUPS

Related Jumpers

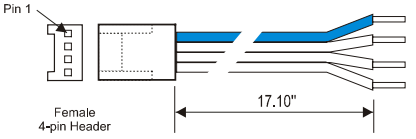
No jumper setting is required.

BIOS Level

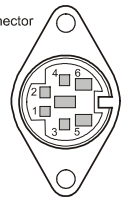
The PS/2 mouse is assigned by default with the IRQ12. To free this interrupt from monitoring, run the BIOS Setup program, *Power Management* option.

MAKING CONNECTIONS

To connect a standard PS/2 mouse to the board, please refer to the following scheme of the #150-337-00 PS/2 Mouse cable:



PS/2 Mouse Connector
(back view)



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

MORE ...

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

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.

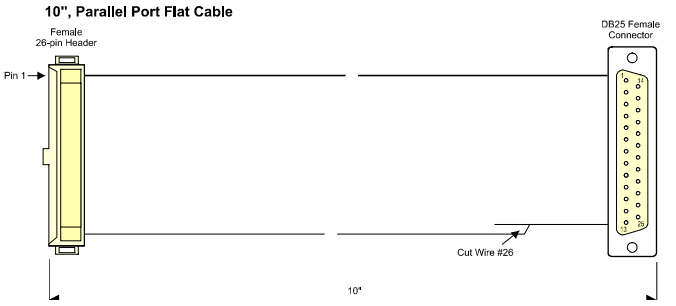
BIOS Level

The Parallel Port is assigned by default with the IRQ7. 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 J16 Parallel Port connector. 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 from KONTRON and is referred to as #150-172.



MORE ...

By default, the parallel port is set for ECP+EPP 1.9 operation mode.
The signal assignation on the J16 Parallel Port connector differs depending on the operation mode. For more information on the signal assignation, please refer to Appendix D – *Connector Pinouts.*

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 J21 PC/104-*Plus* connector (PCI).

SETUPS

Related Jumpers

No jumper setting is required on the board.

BIOS Level

If a second REQ/GNT pair is required when installing a PC/104-*Plus* stackable module, the REQ/GNT pair assigned to the optional Ethernet interface can be free by disabling the Ethernet controller.

For more information on this operation, please refer to the Ethernet feature description.

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)
J21 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 your module's documentation.

SERIAL PORTS – Serial Port 1

Serial Port 1 is available through the J20 connector and supports RS-232 operation mode.

SETUPS

Related Jumpers

No hardware setup is required on the VIPer 826.

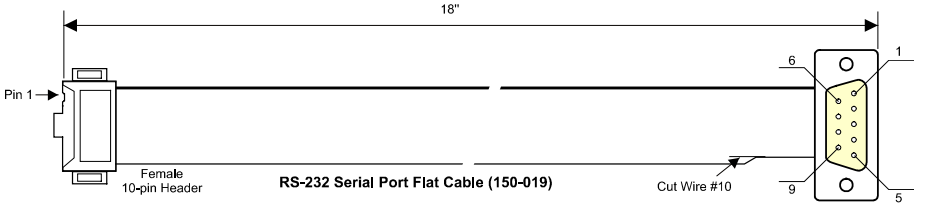
BIOS Level

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 from KONTRON and is referred to as #150-019.



MORE ...

The use of "Taiwanese" adapter cables is not recommended, since the pinout is often different. The direct crimp design offered by KONTRON allows the simplest cable assembly. All cables are available from KONTRON by contacting the Sales Department.

Serial Port 2 is available through the J19 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 may be tied to the RX and TX pairs of the Serial Port 2 by shorting respectively the **W7** and **W8** jumpers.

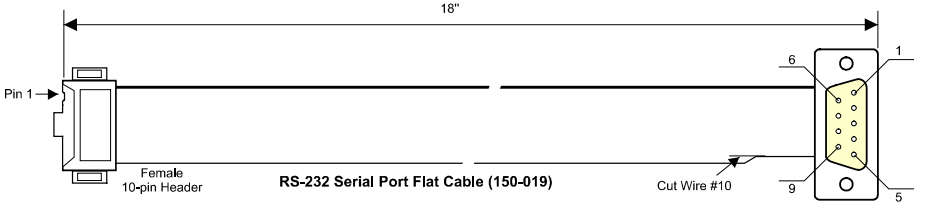
BIOS Level

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 from KONTRON and is referred to as #150-019.



MORE ...

Serial Port 2 in RS-485 mode 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". Pin 3 and 4 of J20 act as the receiver lines and pin 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 J19) 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 W7 and W8 jumpers to enable termination resistors.

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 J11 CompactFlash connector.

SETUPS

Related Jumpers

No jumper setting is required.

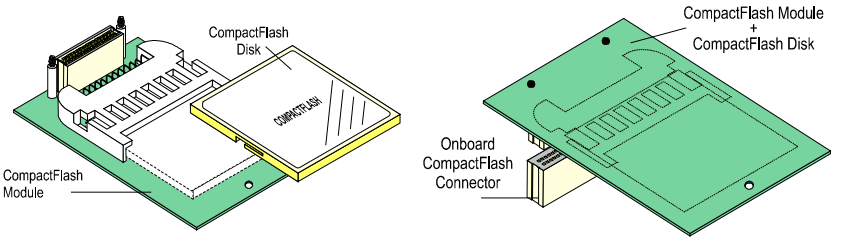
BIOS Level

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*.

The floppy disk interface supports up to two drives (360KB to 2.8MB 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

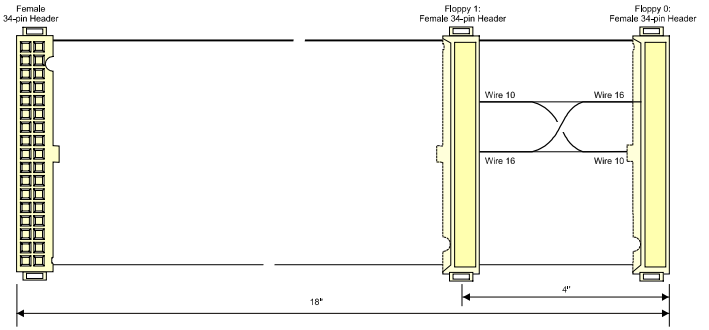
The floppy disk controller can be disabled at the BIOS level, *Integrated Peripherals* option.

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 from KONTRON and is referred to as #150-051.



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 connector is reserved to the Floppy Disk B.

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

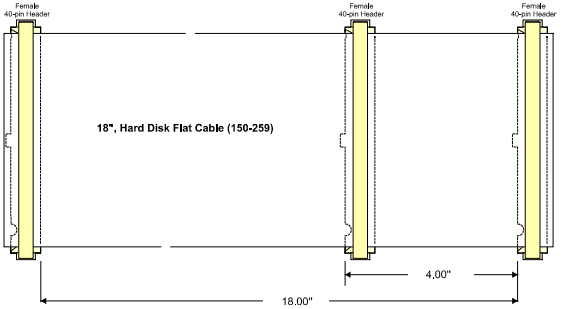
Standard setups are provided at the *Standard CMOS Setup* option.

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

PIO and UDMA setups are provided at the *Intergrated 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 from KONTRON and is referred to as #150-259.



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.

Audio features are supported through the Line IN/OUT, microphone IN and CD IN inputs. Signals are provided on individual 3.5mm (1/8 in) stereo Jacks located on the edge bracket, and on a 14-pin header referred to as J13.

SETUPS

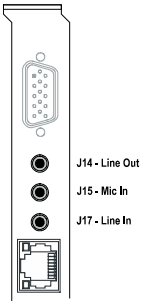
Related Jumpers

No jumper setting is required.

BIOS Level

Audio features (configuration, I/O base address, IRQ, DMA) can be configured at the BIOS level through the *Integrated Peripherals* option.

MAKING CONNECTIONS



3.5mm (1/8") standard Jack connectors are available on the edge bracket. They allow direct connection of standard devices, while the **J13** 14-pin header provides signals to be tied on customized connectors.

The audio signal provided on a Jack connector takes priority on the signal on the **J13** 14-pin header: If there is any device connected on the **J13** header, connecting a device through a Jack connector will disconnect the signal from it.

MORE ...

Line IN	supports cassette and CD player, synthesizer, etc.
Line OUT	provides 1/15W under 32 ohms. Supports direct connection of headphone, pre-amplified PC speakers, or amplifier.
Mic IN	supports Electrecet-condenser microphone (600 ohms impedance, 10-200mV input range.

SUPERVISION FEATURES – Supervisor Registers

Four 8-bit supervisor registers (I/O Register 0-3) are provided to set and control special I/O features of the board. These registers can be assigned with four consecutive and relocatable addresses.

SETUPS

Related Jumpers

No jumper setting is required.

BIOS Level

The base address of the first supervisor register (Supervisor Register 0) can be selected within 190h, 290h, or 390h. Registers 1, 2 and 3 are located at the subsequent addresses.

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

SUPERVISIOR REGISTERS

Supervisor Register 0 (x90h)			
bit 0	R/W	ENWD	Enable/Disable external watchdog circuit
bit 1	R/W	CWD	Watchdog control (toggle to reset the external watchdog timer when ENWD id high)
bit 2	R/W	ST1	(COM2) En/Dis RTS2 output for RS-485
bit 3	R/W	RS232	(COM2) RS-232 operation when high
bit 4	R/W	RS485	(COM2) RS-422/485 operation when high
bits 5-7	Reserved		
Supervisor Register 1 (x91h)			
bit 0	R	PFO#	External Power Fail Flag status
bit 1	R/W	TOUT_ACK	(SMM handler) Acknowledge Temperature Alarm
bit 2	R/W	LOCK	Lock RSTLAN
bit 3	R	VT-100#	En/Dis VT-100 mode
bit 4	R	USER RES	User Reserved – status of pins 3-4 of W2 or pins 11-12 of J6
bits 5-7	Reserved		
Supervisor Register 2 (x92h)			
bit 0	R/W	DIS_LAN#	En/Dis Ethernet controller
bit 1	R/W	ENSMI#	En/Dis External SMI
bit 2	R/W	GPO	Flat panel general purpose I/O #0
bit 3	R/W	GP1	Flat panel general purpose I/O #1
bit 4	R/W	GP2	Flat panel general purpose I/O #2
bits 5-7	Reserved		
Supervisor Register 3 (x93h)			
bit 0	R/W	SDA	SDA line of I^2C interface
bit 1	R/W	SCL	SCL line of I^2C interface
bit 2	R	PME#	SMI source wake-up event from LAN controller
bit 3	R/W	IDCHIP	Communication line fort ID chip
bit 4	R	TEMP_ALARM	SMI source Temperature sensor Alarm
bits 5-7	Reserved		

Active Low Signal

The Power Fail Detection feature can be used to monitor a power fail condition that could be initiated by either the onboard battery or an external power source (depending on the setup of the W5 jumper).

SETUPS

Related Jumpers

Refer to W5 Power Fail jumper to select the power source to be controlled.

BIOS Level

No setting required.

OPERATION

The power fail status is available through the bit 0 of the Supervisor Register 1
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 up of R16 (10Kohm) and R15 to be installed by the user. Use the following formula to calculate the value of R15: R15 = 10Kohm . (Vext –1.3)/1.3

Use J9 Power connector to connect an external battery can connect to the board.

SUPERVISION FEATURES – Power Management

All power management controls and setups are provided at the 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 two 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 fixe disk drive and the video shut off while all other devices still operate at a full speed.

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 Powerdown mode is only available if the device supports this capability.

The Watchdog is provided to monitor the processor's inactivity. It issues a failure signal if the processor fails to refresh the watchdog within a timeout period (1.6 seconds).

SETUPS

Related Jumpers

The watchdog can be enabled/disabled onboard using the W9 jumper.

BIOS Level

No setting required.

OPERATION

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

1. The watchdog timer must be enabled by setting High (Enable) the Watchdog status bit (Bit 0 – Supervisor Register 0).
2. The watchdog timer must be refreshed (reset) by software. This operation is controlled by Bit 1 – Supervisor Register 0 that must be toggled from 0 to 1 every 1.6 seconds.
3. If a failure occurs, the single-stage watchdog generates a system reset.

USB PORT

The VIPer 826 provides a dual USB port through the J3 USB connector. To conform to the standard USB requirements, a USB adapter cable is required.

SETUPS

Related Jumpers

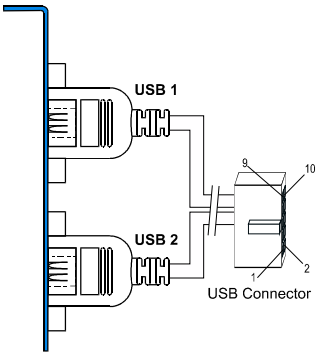
No jumper setting is required.

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 from KONTRON and is referred to as #150-316.

MORE ...

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

Analog RGB VGA signals are available for direct CRT display connection through the J12 VGA CRT connector located on the edge bracket.

SETUPS

Related Jumpers

No jumper setting is required.

BIOS Level

The CRT Only operation mode must be set at the BIOS level, *Chipset Features* screen, *Output Display* option. Other configurations are: No Video, Flat Panel Only, or simultaneous CRT/Flat Panel.

To select the video memory size, refer to the *Chipset Features* screen, *Video Memory Size* option.

MAKING CONNECTIONS

The CRT monitor connects directly to the VIPer 826 through the J12 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).

In multiple-video configuration (using a second video controller off the board), the priority between the onboard and external video controller must be selected through the *Chipset Features* screen, *Multiple Video Priority* option.

VIDEO FEATURES – Flat Panel Display

The flat panel connects to the VIPer 826 through the J4 Flat Panel connector. A cable must be designed to tie the panel to the board in accordance to the pinout of both the J4 Flat Panel connector and the panel connector. The pinout of the flat panel connector is provided in Appendix D – *Connector Pinout*.

SETUPS

Related Jumpers

Signal and power level can be switched from 3.3V to 5V using the **W3** jumper.

BIOS Level

Run the BIOS Setup Program, *Chipset Features Setup* option to configure the output display, the video memory size, the video control source, and the flat panel resolution.

MAKING CONNECTIONS

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 KONTRON's web site (*Support and Services, Video BIOS* page), or do not hesitate to contact our Technical Support Department.

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.

SOFTWARE SETUPS

4. BIOS SETUP PROGRAM

5. UPGRADING THE BIOS WITH UBIOS

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 AWARD's special enhanced features.
Chipset Features 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.
System Monitoring Setup	Use this screen to set thermal management options.
Integrated Peripherals	I/O susbsystems that depend on the integrated peripheral controllers in your system.
Load Bios Defaults (Safe)	The BIOS defaults are **fail safe** settings which 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** which provide optimum performance for all devices and system features. If CMOS RAM is corrupted, the Setup defaults are loaded automatically.
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.

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 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 screen, 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 optimal system performance.

SETUP default values provide 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.
F1 key	General help.
F2 and Shift-F2 keys	Change color from total 16 colors: F2 to select color forward, Shift-F2 to select color backward.
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.
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).
Memory	This display-only option indicates the amount of Base, Extended and other types of memory installed in the system.

4.3 BIOS FEATURES SETUP

Option	BIOS Default	Setup Default	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, you must first disable the virus warning.**
CPU Internal Cache	En.	En.	En., Dis.	Enables or Disables the CPU Internal Cache (L1 cache).
Quiet POST	Dis.	Dis.	En., Dis.	When enabled, only a limited POST (Power-On Self Test) code list is displayed.
Quick POST (Power On Self Test)	Dis.	En.	En., Dis.	Select Enabled to reduce the amount of time required to run the POST. **Note: A quick POST skips certain steps. It is recommended to enable quick POST to save time, since most major OS do their own tests.**
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 diskette. This option have priority on the Boot Sequence operation (see below).
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).
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. If there is only one floppy on the system, it could be assigned to B with this option.
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. **Note: Because very few modern PCs have 40 track floppy drives, we recommend that you set this field to "Disabled" to save time.**
HD Write Protect	Dis.	Dis.	En., Dis.	When Enabled, this option will not permit writing to the hard disk.
Drive A Boot Permit	En.	En.	En., Dis.	When Disabled, this option will not permit booting from Drive A.
FD Write Protect	Dis.	Dis.	En., Dis.	When Enabled, this option will not permit writing to the floppy disk.
Boot Up NumLock Status	On	On	On, Off	Toggle between On or Off to control the state of the NumLock key when the system boots. When toggled On, the numeric keypad generates numbers instead of controlling cursor operations.
Gate A20 Option	Normal	Fast	Normal, Fast	When Fast, enables fast switching of Gate A20 via the chipset chipset, instead of the keyboard controller.
Memory Parity Check	Dis.	Dis.	En., Dis.	Select Enabled if the memory installed onboard supports parity.
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/Sec)	6	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)	1000	250	250-1000 ms	When the typematic rate setting is Enabled, you can select a typematic delay (the delay before key strokes begin to repeat).

Option	BIOS Default	Setup Default	Possible Settings	Description
Security Option	Setup	Setup	Setup, System	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).
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.
OS Select For DRAM > 64MB	Non-OS2	Non-OS2	Non-OS/2, OS/2	Select OS2 only if you are running OS/2 with greater than 64MB of RAM.
HDD S.M.A.R.T. Capability	Dis.	En.	En., Dis.	This option allows BIOS to use the S.M.A.R.T. (System Management and Reporting Technologies) protocol for reporting server system information over a network.
Save CMOS in Flash	Dis.	Dis.	En., Dis.	When this option is set to "Enabled", the CMOS RAM Setup will be restored from the Flash BIOS at each power up. If the battery fails, only the date and time could be lost.
Full Screen Logo Show	Dis.	Dis.	En., Dis.	When enabled, a logo is displayed instead of the normal POST screen
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-bit ISA bus. Shadowing improves the performance of the system BIOS and similar firmware for expansion peripherals. When enabled, the video BIOS of an external ISA VGA adapter is shadowed into each section of memory separately. Note that on a PCI VGA card (onboard or offboard), the VGA BIOS is always shadowed. Video BIOS shadows into memory area C0000 plus the VGA BIOS size. The remaining areas up to DFFFFh 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.	Dis.	En., Dis.	
CC000-CFFFF	Dis.	Dis.	En., Dis.	
D0000-D3FFF	Dis.	Dis.	En., Dis.	
D4000-D7FFF	Dis.	Dis.	En., Dis.	
D8000-DBFFF	Dis.	Dis.	En., Dis.	
DC000-DFFFF	Dis.	Dis.	En., Dis.	

4.4 CHIPSET FEATURES SETUP

Option	BIOS Default	Setup Default	Possible Settings	Description
SDRAM CAS Latency Time	3T	3T	2T, 3T, Auto	When Synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. The default value must not be changed.
SDRAM Clock Ratio Divided By	Auto	Auto	2-5, Auto	CPU clock ratio for memory speed (Auto = 60-66MHz)
ISA Clock Speed	8MHz	8MHz	8, 11MHz	
16 Bit I/O Recovery (clk)	5	5	1-16A	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 so much faster than the ISA bus. These two fields let you add recovery time (in bus clock cycles) for 16-bit and 8-bit I/O.
8 Bit I/O Reccovery (clk)	5	5	1-16	
USB Keyboard Support	En.	En.	En/Dis	Select Enabled, if your system supports an Universal Serial Bus (USB) controller and you have an USB keyboard. **Note: This option is for DOS and BIOS support only (Win95 has its own drivers)**
Multiple Video Priority	PCI 1st	PCI 1st	PCI 1st Onboard 1st, No onboard	Defines the priority of the video controller In multiple video controller/board configuration (including onboard video)
Video Memory Size	2.5M	2.5M	1.5M, 2.5M	Amount of the memory removed from the main memory and allocated to the onboard video controller. **Note: if the onboard video is disabled, no memory is reserved.**
Output Display	CRT	CRT	None, CRT, Simultaneous, Flat Panel	Video output mode.
Supervisor I/O Base Addr.	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.

4.5 POWER MANAGEMENT SETUP

Option	BIOS Default	Setup Default	Possible Settings	Description
Power Management	Dis.	Dis.	Min Saving, Max Saving, User Define, Disable	When Enabled and the OS supports ACPI or OSPM (e.g., Win98, Window NT 5), power management functionality moves to the OS. **Note: When Enabled, and an ACPI aware OS is installed, all other options in the Power Management Setup will not be used.** Degree of power saving for Doze, and Standby modes. Max Saving: Inactivity period is 1 minute in each mode. Min Saving: Inactivity period is the maximum setting in each mode (1 hour for Standby and HDD power down). User Define: Set each mode individually. Select time-out periods in the PM Timers section (see below).
PM Timers:				The following modes are Green PC power saving functions. They are user-configurable only during User Defined Power Management mode.
Doze Mode	Dis.	Dis.	1-16s, Dis.	After the selected period of system inactivity (1 to 10 sec.), the CPU clock runs at lower speed while all other devices still operate at full speed.
Standby Mode	Dis.	Dis.	1-60 Min, Dis.	After entering Doze mode and the selected period of system inactivity (1 minute to 1 hour) has elapsed, the fixed disk drive and the video shut off while all other devices still operate at full speed.
HDD Power Down	Dis.	Dis.	1-60 Min, Dis.	After the selected period of drive inactivity (1 minute to 1 hour), 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.
Modem Use IRQ	N/A	N/A	N/A, 3-11	Name the IRQ line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.
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.
PM Event				When activated, the monitoring of the interrupt will occur to allow an interrupt to awaken the system when in Power management mode.
IRQ1 Keyboard	On	On	On, Off	
IRQ3 COM2	On	On		
IRQ4 COM1	On	On		
IRQ5 LPT2	Off	Off		
IRQ6 Floppy Disk	Off	Off		
IRQ7 LPT1	Off	Off		
IRQ9 IRQ2 (redir)	Off	Off		
IRQ10 Reserved	Off	Off		
IRQ11 Reserved	Off	Off		
IRQ12 PS/2 Mouse	Off	Off		
IRQ13 Coprocessor	Off	Off		
IRQ14 Hard Disk	Off	Off		
IRQ15 Reserved	Off	Off		

4.6 PNP/PCI CONFIGURATION

Option	BIOS Default	Setup Default	Possible Settings	Description
PNP OS Installed	No	No	Yes, No	Some PnP devices are marked as needed for the Bootup, and some are not. By choosing Yes, the BIOS initializes only those needed for the Bootup. Choosing No makes the BIOS initialize ALL devices. Note: Select Yes when the OS is PnP (Win95, Win98, Win NT). **Select No if the OS is not PnP (Dos).**
Resources Controlled By	Auto	Auto	Auto, Manual	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. If you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot, select enabled to reset Extended System Configuration Data (ESCD). On the next boot only, the BIOS will re-scan for PnP devices.
IRQ *n* Assigned To IRQ3 IRQ4 IRQ5 IRQ7 IRQ9 IRQ10 IRQ11 IRQ12 IRQ14 IRQ15	 Legacy ISA Legacy ISA PCI/ISA P. PCI/ISA P. PCI/ISA P. PCI/ISA P. PCI/ISA P. PCI/ISA P. PCI/ISA P. PCI/ISA P.	 Legacy ISA Legacy ISA PCI/ISA P. PCI/ISA P. PCI/ISA P. PCI/ISA P. PCI/ISA P. PCI/ISA P. PCI/ISA P. PCI/ISA P.	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. **Note: Option should be set to "PCI/ISA PnP" unless you have a Legacy ISA device which uses a specific IRQ.**
DMA *n* Assigned To DMA0 DMA1 DMA3 DMA5 DMA6 DMA7	 PCI/ISA P. PCI/ISA P. PCI/ISA P. PCI/ISA P. PCI/ISA P. PCI/ISA P.	 PCI/ISA P. PCI/ISA P. PCI/ISA P. PCI/ISA P. PCI/ISA P. PCI/ISA P.	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. **Note: Option should be set to "PCI/ISA PnP" unless you have a Legacy ISA device which uses a specific DMA.**
PCI IRQ Activated By	Level	Level	Level/Edge	Leave the IRQ trigger set as *Level* unless the PCI device assigned to the interrupt specifies *Edge* triggered interrupts.
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.
Used MEM Length	8K	8K	8K, 16K, 32K, 64K	Select a length for the memory area specified in the previous field. This field does not appear if no base address is specified.
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.

4.7 INTEGRATED PERIPHERALS

Option	BIOS Default	Setup Default	Possible Settings	Description
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 Primary/Secondary Controller	En.	En.	En., Dis.	The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately.
IDE Primary/Secondary Master/Slave PIO	Auto	Auto	Mode 0, 1, 2, 3, 4, Auto	The IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance and speed. In Auto mode, the system automatically determines the best mode for each device. **Note: 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. These options only appear if the On-Chip Primary/Secondary PCI IDE options are enabled.**
IDE Primary/Secondary Master/Slave UDMA	Dis.	Auto	Auto, Dis.	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.
Built In CPU Audio	SB16	SB16	SB16, Dis.	Enable audio capabilities, and other menus.
MPU-401 I/O Base Address	330h	330h	Dis, 300h, 330h	I/O address for the MIDI controller emulator.
Audio I/O Base Address	220h	220h	220h, 240h, 260h, 280h	I/O address for the audio controller.
IRQ Select	IRQ5	IRQ5	Dis., IRQ5/7/10	IRQ assignation for the audio controller.
Low DMA Select	DMA1	DMA1	Dis., DMA0/1/3	DMA channel assignation for the audio controller (SB16 requires 2 DMA channels).
High DMA Select	DMA5	DMA5	Dis., DMA5/6/7	
Onboard FDC Controller	En.	En.	En., Dis.	Select Enabled if your system has a floppy disk installed and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select Disabled in this field.
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, RS-485	Select the operation mode for Serial Port 2.
UART 2 Mode	Std.	Std.	Std., IrDA1.0, ASK-IR	Select the IR operation mode for Serial Port 2.
Duplex Select	Half	Half	Half, Full	Select the serial communication protocol.
TxD, RxD Active	Hi, Lo	Hi, Lo	Hi,Lo / Lo,Hi / Lo,Lo / Hi,Hi	IR modes only: Determines whether the transmit signal (TxD) and the receive signal (RxD) are active Low (Lo) or active High (Hi).
Onboard Parallel Port	378/IRQ7	378/IRQ7	Dis., 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	Normal, EPP1.7+SPP, ECP+EPP1.7, SPP, ECP, EPP1.9+SPP, ECP+EPP1.9	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.
Ethernet Controller	En.	En.	En., Dis.	Enables/disabled the onboard Ethernet controller.

5. UPDATING THE BIOS WITH UBIOS

BIOS UPDATE PROCEDURE

The BIOS update procedure can be found with the Emergency Recovery procedure on our ftp site: ftp://ftp.kontron.ca/Support in the FAQ section:

Download the FAQ# KC_0028 at location:
ftp://ftp.kontron.ca/Support/Support_FAQ - Questions & Answers/

EMERGENCY PROCEDURE

Symptoms:

- No POST code on a power up (when using a POST card).
- Board does not boot, even after usual hardware and connection verifications.
- At power up, there is floppy disk led activity, which is one sign that the BIOS as detected a corrupted BIOS CRC prior POST and falled back automatically to Emergency Recovery Mode looking for the floppy Emergency disk.

Please go on our FTP site in order to get the latest Emergency Recovery BIOS for that specific product.
BIOS maybe found at: Ftp://Ftp.Kontron.ca/Support/BIOS_Emergency/

Emergency Recovery Procedure is included within the Zip file of the Emergency BIOS to download. Latest Emergency Recovery procedure can be found on the FAQ section of the FTP site under FAQ # KC_0028 at location:
ftp://ftp.kontron.ca/Support/Support_FAQ - Questions & Answers/

UBIOS is an utility that allows you to take BIOS files from a disk and update the Flash BIOS device with them.

It also allows BIOS files in the Flash BIOS device to be saved to disk.

The program can be executed in one of two modes:

Interactive Mode: In this mode the program is menu-driven.

Batch Mode: It is also possible to run the program without menus by a command that specifies the selected options and files with parameters.

Caution:

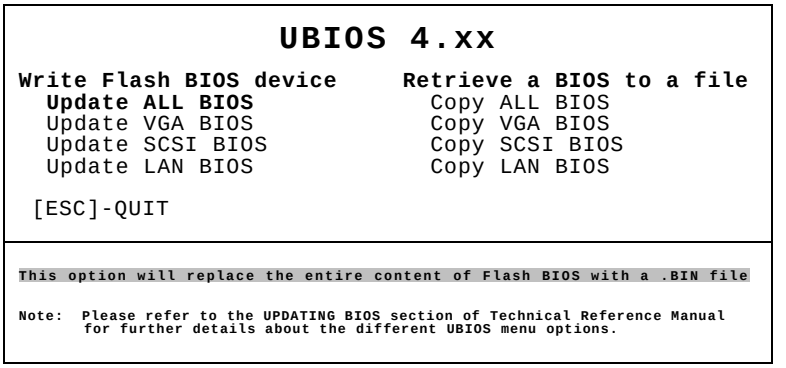
Using UBIOS, will clear the CMOS Setup in ROM. Therefore, it is recommended that you take note of your Setup parameters (especially Hard Disk parameters), so you can reset them afterwards.

To update BIOS files, these files must be in the same directory as the UBIOS.EXE program. Therefore, prior to running the program, make sure the files you wish to update and the UBIOS program file are in the same directory.

When you enter UBIOS, only the current directories are available. Within the UBIOS program, you can change the drive, but not the directory.

5.1 INTERACTIVE MODE

To run the program in interactive mode, type "UBIOS" from the DOS prompt. At the presentation screen, hit any key on the keyboard to display the main screen:



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

The **Update ALL BIOS** option is highlighted. Its description apperas shaded row.

. Move the arrow keys to highlight another option.

. Press ENTER to select the highlighted option.

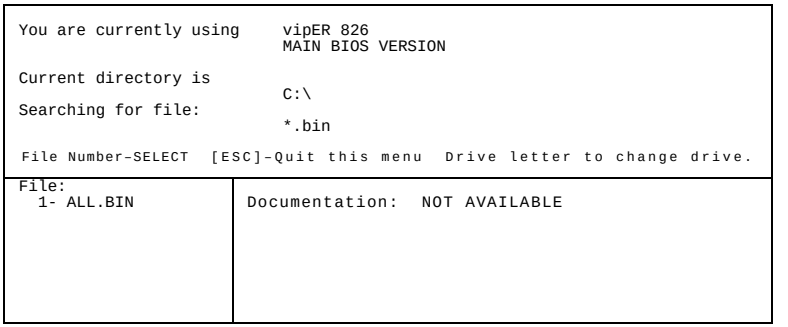
. Press the ESC key to exit the program (when in the main menu).

Four types of BIOS files appear on the main screen:

- **ALL BIOS File:** This file combines all BIOS files contained in the Flash BIOS device in a single file. It has the .BIN extension.
- **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).
- **SCSI BIOS File:** This file contains the SCSI BIOS section of the Flash BIOS. It has the .BIN extension.
- **LAN BIOS File:** This file contains the LAN BIOS section of the Flash BIOS. It has the .BIN extension.

5.1.1 Updating Flash BIOS

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



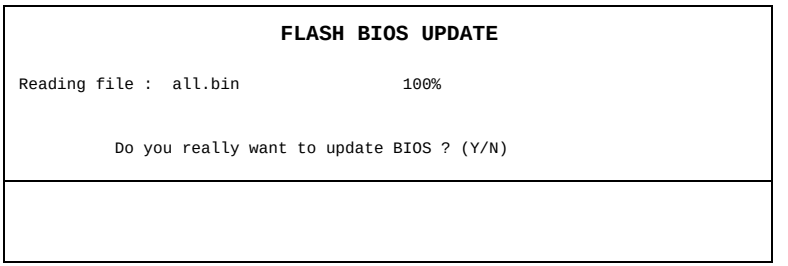
Files of the type you selected in the main menu and which are in the current directory are displayed in the **File** window.

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.

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.



To update the file, type “Y”, the program will write the file to the Flash. The progress of the operation is indicated in percentage completed.

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

```
                        FLASH BIOS UPDATE

Reading file :  all.bin                 100%
PLEASE WAIT – Writing                   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 CPLD 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 ...
```

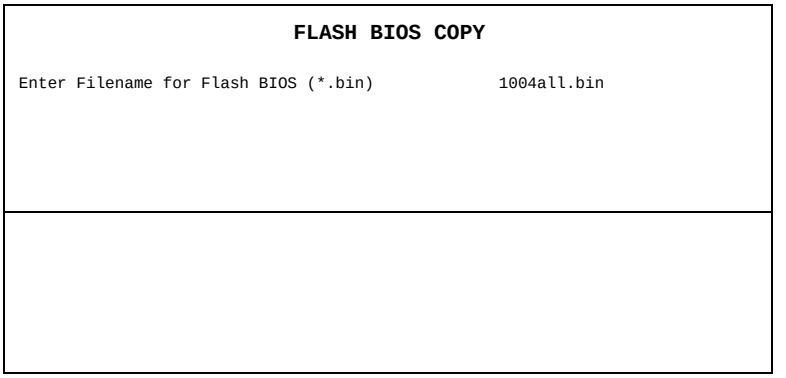
To return to the main menu, hit any key on the keyboard.

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.

5.1.2 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. You must use the same extension as the one indicated in parentheses on the screen. In the above example, the filename entered was “1004all.bin”.

Press ENTER to proceed.

The progress of the operation will display on the screen in percentage completed.

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 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.

5.2 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 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 (AMIBIOS), 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 an operation.

/? 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.

5.3 AUTOMATIC CPLD UPGRADE AFTER A BIOS UPDATE

During the first system bootup after you update the Flash BIOS device with the UBIOS utility, the BIOS may need to upgrade the CPLD devices.

This message appears on the screen when the BIOS writes to the devices:

```
A hardware upgrade will be performed on some CPLDs. Follow the
instructions below with special care. Do not disturb the process.

DO NOT RESET OR POWER DOWN THE BOARD!!!

   □□□ Device 1 □□□   0% □□□□□□□□□□□□□□□□□□□□ 100%

Status :
         Please wait...
```

The color of the boxes displayed in the message indicates these functions:

Device OK	Green
Device busy	Blue
Device will be updated	Red

If your device upgrade was successful, the following message is displayed under the "Status:" line prior to rebooting:

```
Update complete successfully, wait for the automatic reboot.
Rebooting in 5 second(s).
```

If the update is not successful, the following message appears under the "Status:" line:

```
ERROR: general failure programming CPLDs!
Please contact Kontron Industrial Computers technical support.
```

You must contact KONTRON's technical support for further instructions.

Caution:

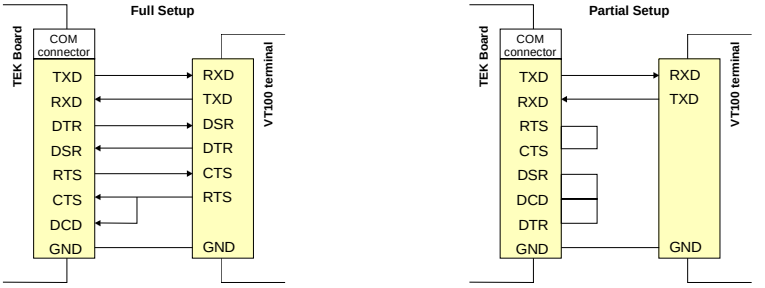
Whenever the BIOS performs a CPLD hardware upgrade, disable the watchdog (by removing the W9 jumper) and do not interrupt the system in any way (power down, reset, mouse or keyboard functions). The devices will be damaged and your board rendered inoperative if you disturb the update process!

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 VIPer826 and install jumper W2 (1-2) 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 by 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 VIPer826 and run the BIOS Setup program, Integrated Peripherals option, and select a communication baud rate.
- The remote terminal must be set to support the following protocol:
  8 Bits / No Parity / 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 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 system according to Diagram 18-2 allows the lines to remain active. This does not apply if the VT100 jumper is not set.

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

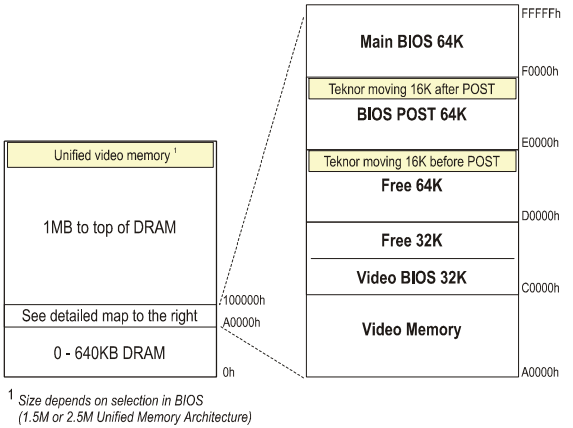
VIPer 826	DESCRIPTION
Overview	*MMX Enhanced MediaGX* Single Board Computer
Supported Microprocessors	MMX MediaGX from Cyrix 233MHz, 266MHz and 300MHz
Data Path	64-bit on CPU and memory bus ; 32-bit on PCI bus ; 16-bit on ISA bus
Bus Interface	PC/AT bus or stand-alone operation PCI Rev 2.1 compliant ; PC/104-*Plus* (2 master REQ/GNT pairs) USB interface EIDE interface, IDE CompactFlash ISA (bus master or IOCHK error trapping not supported)
System Memory **Cache Memory** **Boot Block Flash**	Up to 128MB of 66MHz unbuffered SDRAM on one 168-pin DIMM socket Standard 3.3V only ; single-sided or double-sided ; Parity and/or ECC not supported Level 1: 16KB unified CPU-internal L1 cache 256KB of Flash BIOS
I/Os	*USB* Two Universal Serial Bus (USB) ports – up to 1.5MB/s *Serial* Two UART serial ports configurable as COM1-4. COM2 is configurable as RS-232, RS-422, RS-485. *Parallel* One bi-directional multimode port with nibble, byte, 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 *CompactFlash*: optional CompactFlash disk interfaces on Secondary EIDE channel, user upgradable, bootable *Ethernet* auto-select 10Base-T, 100Base-TX *Floppy* Supports for two disk drives from 360KB to 2.88MB *Keyboard* Standard AT keyboard via 16-pin KBD/Spkr connector *Mouse* PS/2 mouse via 4-pin PS/2 mouse header

VIPer 826	DESCRIPTION
Video	MediaGX built-in video controller running at the full processor clock speed Simultaneous CRT / Flat Panel display support, Multiple display support CRT: CGA, EGA, MDA, VGA, SVGA, XGA, SXGA compatible FP: 18-bit TFT Flat Panel support 3.3V or 5V Flat Panel interface type selection Resolution: up to 1280x1024x256 colors (CRT) up to 800x600x64K colors Video memory through unified system memory (SDRAM)
Audio	MediaGX built-in 16-bit stereo controller, PC97 compliant Line IN, Line OUT, Mic IN, CD IN
Connectors	*Edge Bracket* CRT video: 15-pin D-Sub Line IN: 3.5mm (1/8") Jack connector Line OUT: 3.5mm (1/8") Jack connector Mic OUT: 3.5mm (1/8") Jack connector Ethernet: RJ-45 with built-in LEDs *Onboard Connectors* IDE Hard Drive: 40-pin connector Floppy Disk: 34-pin connector USB: 10-pin connector Flat Panel: 50-pin high-density connector Fan: 2-pin header Power: 5-pin and 6-pin headers PS/2 Mouse: 4-pin header CompactFlash: 40-pin dedicated connector Audio: 14-pin header Parallel Port: 26-pin connector Serial Ports: 10-pin connectors PC/104*Plus*: PC/104*Plus* standard connector PC/104: PC/104 standard connector
BIOS Features	Award BIOS in Boot Block Flash. Auto configuration, extended setup, Plug and Play tables. Diskless, keyboardless, and videoless operation extensions. BIOS POST and Setup console redirection to serial port. Programmable memory wait states. System and video, BIOS shadowing Advanced power management support. Ability to support MS-DOS and other applications from Flash disk.

VIPer 826	DESCRIPTION
Supervisory	One stage watchdog timer ; Programmable CPU temperature monitor; /alarm Power failure / low battery detector; Built-in Ethernet activity / link.LEDs
Operating System Compatibility	MS-DOS® 6.22, Windows® 3.1, Windows® 95, Windows® NT 4.0, Windows® 98, QNX 4.24
Dimensions	7.125 x 4.80 inches / 181 x 122 mm Half-size form factor
Power Requirements	Supply Voltages +5V, ±5% *Supply Current** 233MHz: 2.70A (Typ.) ; 1.41A (Susp.). 266MHz: 2.54A (Typ.) ; 1.36A (Susp.).
Reliability	MTBF: over 100,000 hours @ 20°C / 68°F(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
Environmental Conditions	Operating Temp. 0 to +60°C (w/ airflow) - 5% to 95% RH at 40°C Storage Temp. -40°C to +70°C - 0% to 95% RH at 40°C Shock 5G on each axis Vibration 1.5G on each axis

B. MEMORY & I/O MAPS

B.1 MEMORY MAPPING



1 *Size depends on selection in BIOS (1.5M or 2.5M Unified Memory Architecture)*

Address	Function
00000-9FFFF	0-640 KB DRAM
A0000-BFFFF	64KB Video Memory
C0000-CBFFF	32KB Video BIOS
CC000-CCFFF	32KB Free
D0000-EFFFF	64KB Reserved
F0000-FFFFF	64KB Main BIOS
100000-Top of DRAM	1 MB - Top of DRAM

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				Timer
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		KONTRON Control Port
1F0-1F7, 3F6				Primary IDE
170-177, 376				Secondary IDE
220-233				Sound Controller
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	Sound Controller *	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.

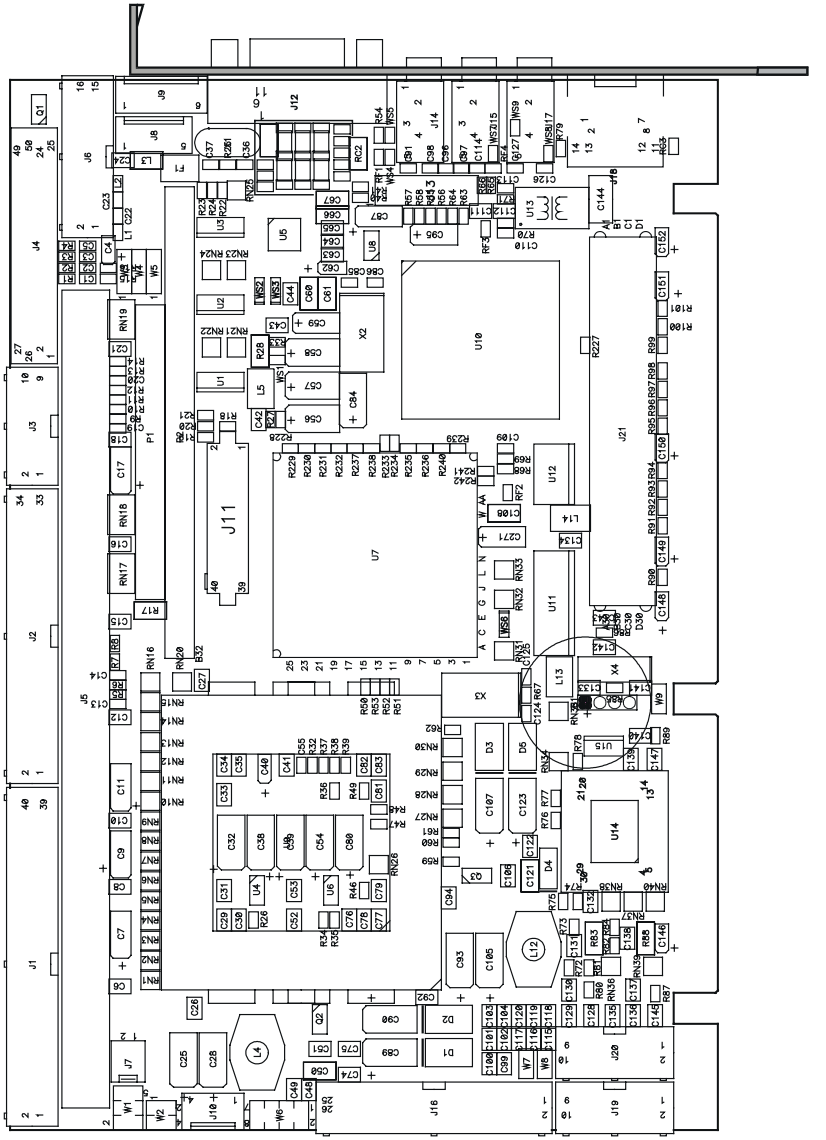
According to Plug and Play standards, the system BIOS automatically allocates DMA Channel 1 or 3 for the parallel port's ECP mode. Channel 2 is reserved for the floppy controller and Channel 4 is used to cascade Channels 0 through 7 to the microprocessor.

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

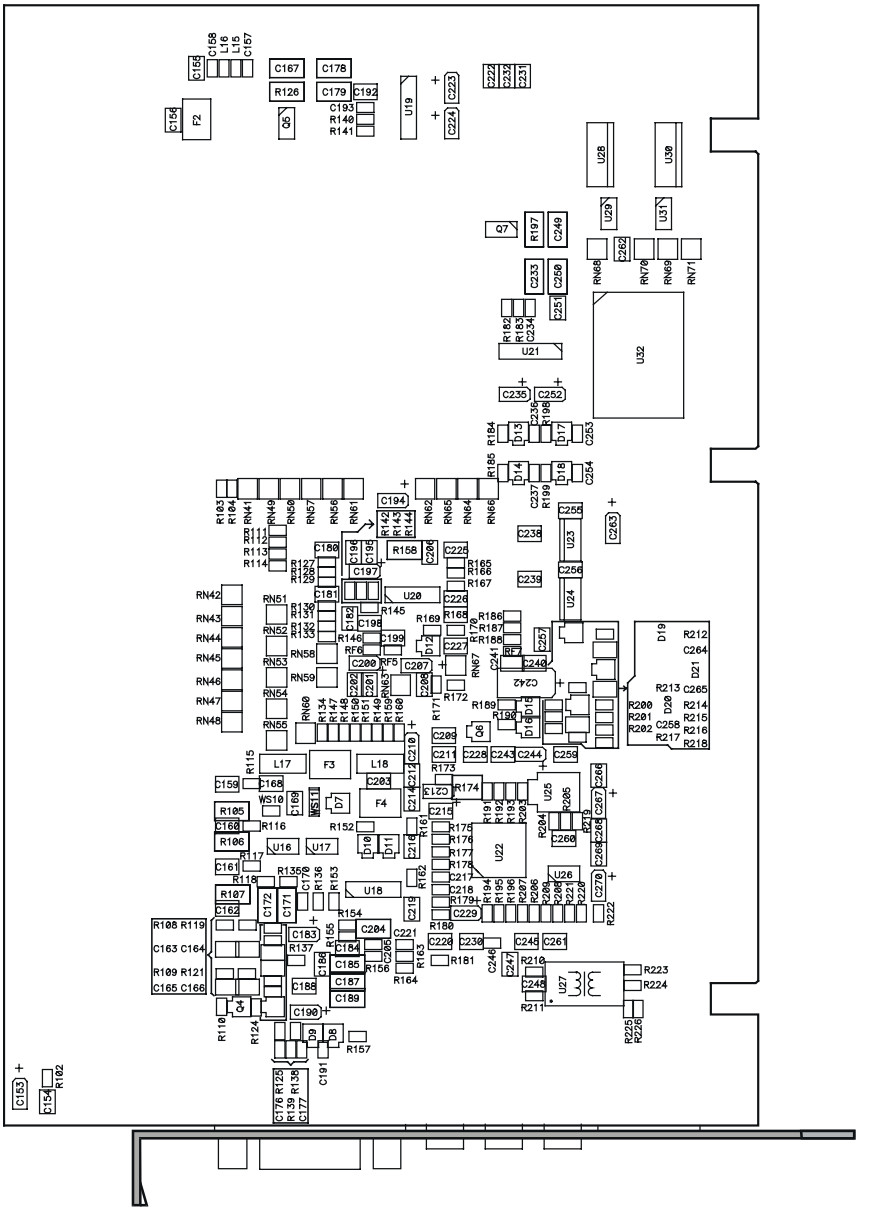
* All functions marked with an asterisk (*) can be disabled or reconfigured.

C. BOARD DIAGRAMS

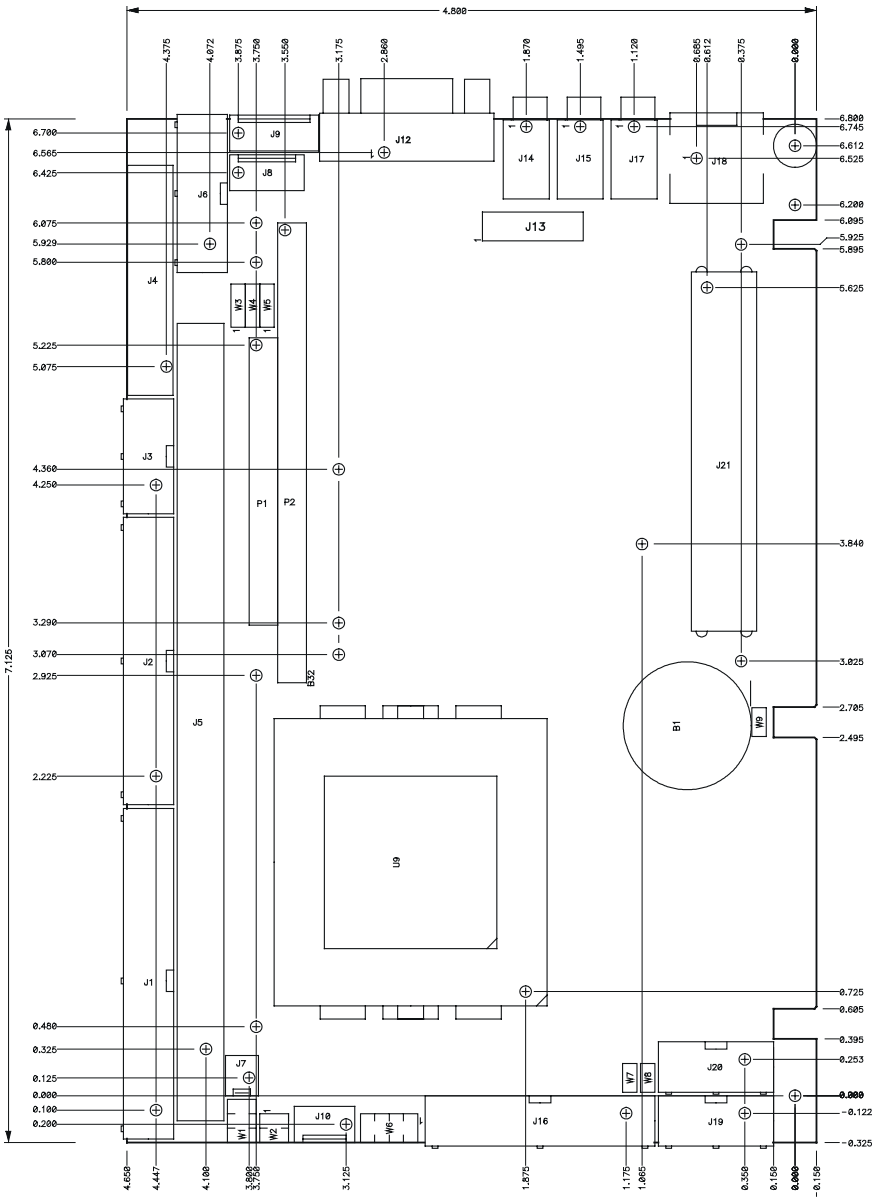
C.1 ASSEMBLY - TOP DIAGRAM



C.2 ASSEMBLY - BOTTON DIAGRAM



C.3 ASSEMBLY - MECHANICAL DIAGRAM



D. CONNECTOR PINOUTS

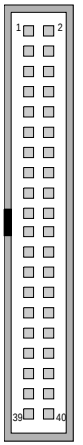
Connectors and headers are listed below:

J1	IDE Hard Disk Drive connector
J2	Floppy Disk connector
J3	Dual USB connector
J4	Flat Panel Connector
J6	Keyboard/Speaker connector
J7	CPU Fan header
J8	Power Supply header (5 pins: +5V, GND)
J9	Power Supply header (5 pins: +5V, +12V, -12V, GND, External Batt.)
J10	PS/2 Mouse header
J11	CompactFlash connector
J12	SVGA CRT Video connector
J13	Audio Feature header
J14	Line Out Jack connector
J15	Mic. In Jack connector
J16	Parallel Port connector
J17	Line In Jack connector
J18	Ethernet connector
J19	Serial Port 2 connector
J20	Serial Port 1 connector
J21	PC/104-*Plus* connector
P1	PC/104 connector (16-bit)
P2	PC/104 connector (8-bit)

D.1 IDE HARD DISK DRIVE CONNECTOR (J1)

Pin Number	Signal
/RESET	1
D7	3
D6	5
D5	7
D4	9
D3	11
D2	13
D1	15
D0	17
GND	19
DRQ	21
/IOW	23
/IOR	25
IOCHRDY	27
DACK	29
IRQ14	31
A1	33
A0	35
/CS0	37
/ACT	39

Top View

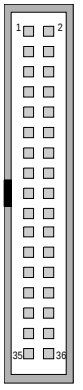


Pin Number	Signal
2	GND
4	D8
6	D9
8	D10
10	D11
12	D12
14	D13
16	D14
18	D15
20	N.C.
22	GND
24	GND
26	GND
28	GND
30	GND
32	N.C. (/IOCS16)
34	N.C. (/PDIAG)
36	A2
38	/CS1
40	GND

D.2 FLOPPY DISK DRIVE CONNECTOR (J2)

Pin Number	Signal
GND	1
GND	3
GND	5
GND	7
GND	9
GND	11
GND	13
GND	15
GND	17
GND	19
GND	21
GND	23
GND	25
GND	27
N.C.	29
GND	31
N.C.	33

Top View

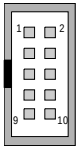


Pin Number	Signal
2	/DRVEND
4	N.C.
6	N.C.
8	/INDEX
10	/MTR0
12	/DS1
14	/DS0
16	/MTR1
18	/DIR
20	/STEP
22	/WDATA
24	/WGATE
26	/TRK0
28	/WRTPROT
30	/RDATA
32	/HDSEL
34	/DSKCHG

D.3 DUAL USB CONNECTOR (J3)

Pin Number	Signal		Pin Number	Signal
VCC (+5V)	1		2	VCC (+5V)
SBP0-	3		4	SBP1-
SBP0+	5		6	SBP1+
GND	7		8	GND
GND	9		10	GND

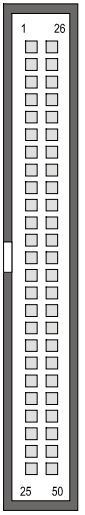
Top View



D.4 FLAT PANEL CONNECTOR (J4)

Pin Number	Signal		Pin Number	Signal
B2	1		26	FP_DE
B3	2		27	GND
B4	3		28	GND
B5	4		29	GND
G2	5		30	GP0
G3	6		31	GP1
G4	7		32	GND
G5	8		33	ENABKL/ENVEE
R1	9		34	GND
R0	10		35	FP_HSYNC
G1	11		36	GND
G0	12		37	ENABKL/ENVEE
R5	13		38	ENVDD
R4	14		39	B0
R3	15		40	GP2
R2	16		41	N.C.
GND	17		42	GND
FP_CLK	18		43	GND
GND	19		44	GND
GND	20		45	N.C.
GND	21		46	N.C.
FP_VSYNC	22		47	FPVAR_SW (3.3/5V sel)
B1	23		48	FPVAR_SW (3.3/5V sel)
GND	24		49	+12V
GND	25		50	+12V

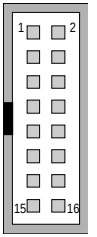
Top View



D.5 KEYBOARD/SPEAKER CONNECTOR (J6)

Pin Number	
Signal	
KBCLK	1
KBDATA	3
VCC (+5V)	5
SPKR	7
Not Connected	9
User Reserved	11
PBRES#	13
HDACT#	15

Top View



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

Active Low Signal

D.6 FAN CONNECTOR (J7)

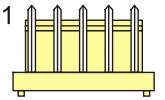
Pin Number	
Signal	
+5V	1
GND	2

Front View

D.7 POWER CONNECTOR (J8)

Pin Number	
Signal	
VCC (+5V)	1
GND	2
GND	3
VCC (+5V)	4
VCC (+5V)	5

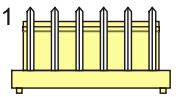
Front View



D.8 POWER CONNECTOR (J9)

Pin Number	
Signal	
VCC (+5V)	1
GND	2
GND	3
+12V	4
-12V	5
External Batt.	6

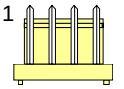
Front View



D.9 PS/2 MOUSE CONNECTOR (J10)

Signal	Pin Number
MCLOCK	1
GND	2
MDATA	3
VCC (+5V)	4

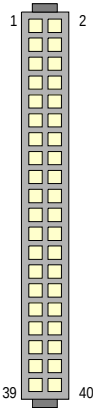
Front View



D.10 IDE COMPACTFLASH CONNECTOR (J11)

Signal	Pin Number
D11	1
D12	3
D13	5
D14	7
D15	9
/CS3	11
/DACK	13
DRQ	15
/PDIAG	17
IRQ	19
VCC	21
GND	23
/RESET	25
M/S	27
A1	29
A0	31
D0	33
D1	35
D2	37
N.C.	39

Top View



Pin Number	Signal
2	GND
4	D3
6	D4
8	D5
10	D6
12	D7
14	/CS1
16	/IOR
18	/IOW
20	VCC
22	VCC
24	GND
26	GND
28	A2
30	/ACT
32	IORDY
34	D8
36	D9
38	D10
40	GND

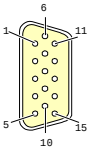
D.11 VIDEO CONNECTOR (J12)

Signal	
RED	1
GREEN	2
BLUE	3
Not Connected	4
GND	5

Signal	
Analog GND	6
Analog GND	7
Analog GND	8
Not Connected	9
GND	10

Signal	
Not Connected	11
I2CDATA	12
HSYNC	13
VSYNC	14
I2CCLK	15

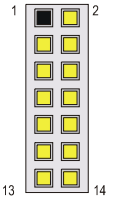
Top View



D.12 AUDIO HEADER (J13)

Pin Number	
Signal	
MIC IN	1
LINE IN (R)	3
LINE IN (L)	5
LINE OUT (R)	7
LINE OUT (L)	9
CD IN (L)	11
CD IN (R)	13

Top View

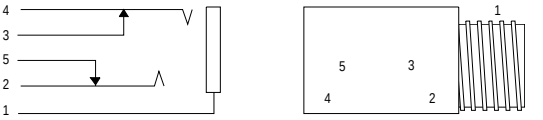


Pin Number	
	Signal
2	AUDIO GND
4	AUDIO GND
6	AUDIO GND
8	AUDIO GND
10	AUDIO GND
12	AUDIO GND
14	Reserved

D.13 LINE OUT JACK HEADER (J14)

Pin Number	
Signal	
AUDIO GND	1
OUTL	2
LINE OUT (R)	3
OUTR	4
LINE OUT (L)	5

Top View

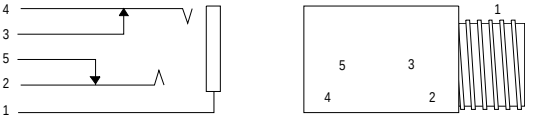


Line Out signals (3-5, J14) can be also provided on the J13 Audio Header. Signals provided on the Jack connector take priority on the Audio Header (9-7, J13). If there is a device connected to J13, connecting a device through the Jack connector will disconnect the signals from it.

D.14 MIC IN JACK HEADER (J15)

Pin Number	
Signal	
AUDIO GND	1
MIC IN	2
N.C.	3
N.C.	4
SWITCHED MIC IN	5

Top View

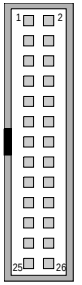


The microphone signal can be also switched on the J13 Audio Header. The signal provided on the Jack connector takes priority on the Audio Header (J13). If there is a device connected to J13, connecting a device through the Jack connector will disconnect the signal from it.

D.15 PARALLEL PORT CONNECTOR (J16)

Pin Number		Pin Number	
Signal			Signal
/STB	1	2	/ALF
PD0	3	4	/ERR
PD1	5	6	/INIT
PD2	7	8	/SLCTIN
PD3	9	10	GND
PD4	11	12	GND
PD5	13	14	GND
PD6	15	16	GND
PD7	17	18	GND
/ACK	19	20	GND
BUSY	21	22	GND
PE	23	24	GND
SLCT	25	26	GND

Top View



D.16 LINE IN JACK HEADER (J17)

Pin Number	
Signal	
AUDIO GND	1
INL	2
LINE IN (R)	3
INR	4
LINE IN (L)	5

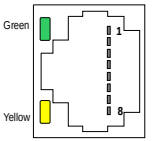
Top View

Line In signals (3-5, J14) can be also provided on the J13 Audio Header. Signals provided on the Jack connector take priority on the Audio Header (3-5, J13). If there is a device connected to J13, connecting a device through the Jack connector will disconnect the signals from it.

D.17 ETHERNET CONNECTORS (J18)

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

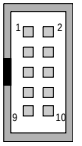
Top View



D.18 SERIAL PORT 2 CONNECTOR – RS-232/RS-422 (J19)

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

Top View

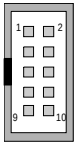


Pin Number	Signal	
	(RS-232)	*(RS-422)*
2	/DSR	DSR
4	/RTS	RX (+)
6	/CTS	TX (+)
8	/RI	/RI
10	N.C.	N.C.

D.19 SERIAL PORT 1 CONNECTOR (J20)

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

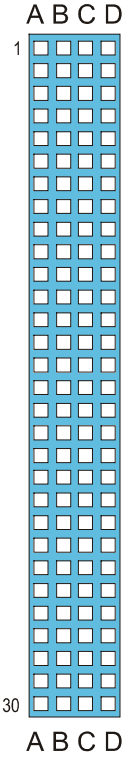
Top View



Pin Number	Signal
2	/DSR
4	/RTS
6	/CTS
8	/RI
10	Not Connected

D.20 PC/104-*PLUS* CONNECTOR (J21)

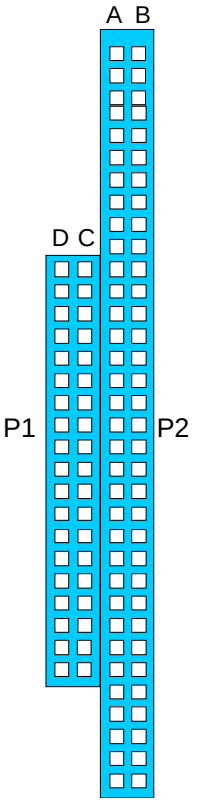
	A	B	C	D	
1	5V_KEY	N.C.	+5V	AD00	1
2	VI/O (5V)	AD02	AD01	+5V	2
3	AD05	GND	AD04	AD03	3
4	C/BE0#	AD07	GND	AD06	4
5	GND	AD09	AD08	GND	5
6	AD11	+5V	AD10	N.C.	6
7	AD14	AD13	GND	AD12	7
8	+3.3V	C/BE1#	AD15	+3.3V	8
9	SERR#	GND	SB0#	PAR	9
10	GND	PERR#	+3.3V	SDONE	10
11	STOP#	+3.3V	LOCK#	GND	11
12	+3.3V	TRDY#	GND	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#	+5V	IDSEL3	19
20	GND	AD26	AD25	GND	20
21	AD29	+5V	AD28	AD27	21
22	+5V	AD30	GND	AD31	22
23	REQ0#	GND	REQ1#	+5V	23
24	GND	REQ2#	+5V	GNT0#	24
25	GNT1#	+5V	GNT2#	GND	25
26	+5V	CLK0	GND	CLK1	26
27	CLK	+5V	CLK3	GND	27
28	GND	INTD#	+5V	RST#	28
29	+12V	INTA#	INTB#	INTC#	29
30	-12V	N.C.	N.C.	GND	30



Active Low Signal

D.21 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 (+5V)	SD13
17	MASTER#	SD14
18	GND	SD15
19	GND	GND



P2		
A	B	
IOCHK#	GND	1
SD7	RESET DRV	2
SD6	VCC (+5V)	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 (+5V)	29
SA1	OSC	30
SA0	GND	31
GND	GND	32

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	**-*	Enterring 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 controller is inserted 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 cord is correctly and firmly installed in the bus. 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 controller is installed correctly and firmly. If there are no floppy drives installed, be sure the Diskette 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. You can use this location along with the memory map for your system to find and replace the bad memory chips.

MEMORY SIZE HAS CHANGED SINCE LAST BOOT

Memory has been added or removed since the last boot. In EISA mode use the Configuration utility to reconfigure the memory configuration. In ISA mode enter Setup and enter the new memory size in the memory fields.

MEMORY VERIFY ERROR AT ...

Indicates an error verifying a value already written to memory. Use the location along with your system's memory size in the memory map to locate the bad chip.

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 at the bottom 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

EISA POST codes are typically output to port address 300h. 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.

POST (hex)	Name	Description
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.

POST (hex)	Name	Description
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-1E	Reserved	
1F	Set EISA Mode	If EISA non-volatile memory checksum is good, execute EISA initialization. If not, execute ISA tests and clear EISA mode flag. Test EISA Configuration Memory Integrity (checksum & communication interface).
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	Test EISA Extended Memory	If EISA Mode flag is set then test EISA memory found in slots initialization. NOTE: This will be skipped in ISA mode and can be « skipped » with ESC key in EISA mode.
33-3B	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.

POST (hex)	Name	Description
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 initialize from C8000h to F7FFFh.
53	Initialize 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 (W4) to reset the CMOS values.
2. Disable the Power Fail Detection function (W5 removed).
3. Ensure the Supervisor I/O base address is set to 190h (see BIOS Setup Program).
4. Connected 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. 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 (indicated in Section E-1).
7. After the procedure is successfully completed, power down the board, install the battery and Power Fail Detection 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 KONTRON 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 KONTRON diskette package).
3. Remove the KONTRON 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.