

NOVA-7800
Mobile CPU embedded board
With 10/100Mbps Ethernet,
VGA, Audio Version 1.1

User Manual

Version 1.2

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Chapter 1. Introduction

Thank you for choosing the NOVA-7800 Mobile Intel® Celeron® and Pentium III® (Micro-FCBGA) with Multimedia & LAN Ethernet Embedded Little Board. This board comes equipped with low power mobile Pentium® III, or Celeron Processor with the Intel advanced chipset 815E especially designed to fit the needs of the system manufacturers, integrators, or VARs that want to build a low power consumption system.

In addition, the NOVA-7800 provides on-chip VGA which provides up to 1600x1200 in resolution.

An advanced high performance super I/O chip – W83627 is used in the NOVA-7800 board, providing two UARTs that are compatible with the NS16C550. The parallel port and FDD interface are compatible with IBM PC/AT architectures.

The NOVA-7800 has one Fast Ethernet Multifunction PCI Controller working as a LAN controller, which is fully a integrated 10BASE-T/100BASE-TX LAN solution that provides high performance networking functions as well as low power consumption features.

This CPU board has a built-in Compact Flash Disk Socket, CardBus, FireWire for embedded applications.

For multimedia applications, NOVA-7800 provides many functions such as IEEE 1394 ,5.1 channel Audio and video in.

1.1 Specifications

- **CPU** : Intel Mobile CPU(Micro-FCBGA)
- **DMA channels** : 7
- **Interrupt levels** : 15
- **Chipset** : Intel 815E
- **Memory** : One 168 pin DIMM sockets. The memory capability is up to 512MB/133MHz.
- **Ultra ATA/33/66/100 IDE Interface** : One PCI Enhanced IDE channels (2 IDE devices). The south bridge ICH2 supports Ultra ATA/33/66/100 IDE interface. To support Ultra ATA66/100 Hard disk, a specific cable (maximum length -- 45 cm) is available.
- **Floppy disk drive interface** : Single 2.88 MB, 1.44MB, 1.2MB, 720KB, or 360KB floppy disk drive.
- **Serial ports** : Two high-speed 16C550 compatible UARTs with 16-byte FIFO buffer. Up to 115Kbps in speed.
- **Parallel Port** : One IEEE1284 compatible Bi-directional ports. Supports SPP/ECP/EPP.
- **IrDA** : Supports Serial Infrared(SIR) and Amplitude Shift Keyed IR(ASKIR) interface.
- **USB** : Supports two USB 1.1 compatible ports.
- **Audio** : Onboard CMI8738 chipset, supports 5.1 channel sound that include LINEOUT, REAR, and CENTER/BASS.
- **Watchdog timer** :
 - ✓ Software programmable – enable/disabled.
 - ✓ Timer interval is 1 ~ 255 second.
 - ✓ System Reset will be generated while time out.

- **VGA Controller** : Embedded VGA controller, screen Resolution : up to 1600x1200 in 256 Colors at 85Hz Refresh.
- **Intel 82801BA embedded LAN** : IEEE 802.3u Auto-Negotiation support for 10BASE-T/100BASE-TX. Fast back-to-back transmission support with minimum interframe spacing. Connected to your LAN through RJ45 connector.
- **Keyboard Controller** : 8042 compatible for keyboard and PS/2 mouse
- **4 Digital Inputs and 4 Digital Outputs.**
- **4 Channels of composite video input.**
- **FireWire** : The TSB43AA22 provides the digital and analog transceiver functions to implement a two-port mode in a cable-based IEEE 1394. Provides two P1394a fully compliant cable ports at 100/200/400 megabits per second (Mbits/s).
- **CardBus** : Compliant with CardBus/PCMCIA PC Card 95/97 standard specification.
- **Power Consumption** : 5V/3.5A and 12V/0.18A, as running by PIII 800MHz and 256MB.
- **Operating Temperature** : 0° ~ 60° C (CPU needs cooler)

1.2 Package Contents

In addition to this *User's Manual*, the NOVA-7800 package includes the following items:

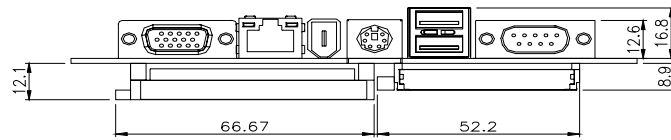
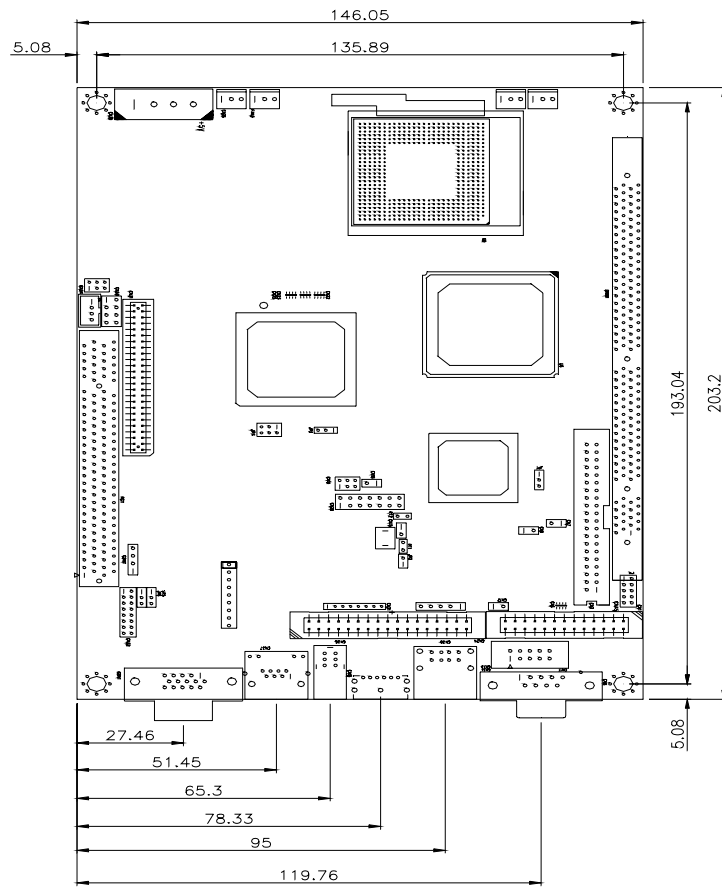
- NOVA-7800 Mobile CPU bases Single board computer.
- One FDD cable.
- One HDD cable.
- Keyboard / Mouse adapter Y cable.
- One RS-232 serial port and one Printer port cable.
- One AUDIO ports cable.
- Two 4 Channels of composite video cable.
- One CPU cooler.
- One IEEE-1394 cable.

Chapter 2. Installation

This chapter describes how to install the NOVA-7800. At first, the layout of NOVA-7800 is shown and then comes the unpacking information that you should be careful is described. Jumpers and switches setting for the NOVA-7800's configuration, such as CPU type selection, system clock setting, and watch dog timer, are also included.

2.1 NOVA-7800's Layout

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2.2 Clear CMOS Setup

The CMOS RAM holds the board's configuration data, which had to be set through system BIOS. In case you want to clear the CMOS RAM (for example, if you have forgotten the password, you should clear the CMOS setting then re-set the password.), you need to close JP1 for about 3 seconds, then open it again to set system back to normal operation mode.

- **JP1: Clear CMOS Setup**

JP1	DESCRIPTION
1-2	Keep CMOS Setup (Normal Operation)
2-3	Clear CMOS Setup

2.3 Compact Flash Setting

Set the operating mode of CompactFlash disk. This is similar to the operation of a hard disk.

- **JP2 : Compact Flash Setting**

JP2	DESCRIPTION
OPEN	Slave
Close	Master

2.4 Audio Amplifier Select

This jumper is for the setting of Audio Amplifier.

- **JP5 : Audio L_Line out select**

JP5	DESCRIPTION
1-2	OFF
2-3	ON

- **JP6 : Audio R_Line out select**

JP6	DESCRIPTION
1-2	OFF
2-3	ON

Chapter 3. Connection

This chapter describes how to connect peripherals, switches and indicators to the NOVA-7800 board. The following table lists the connectors on NOVA-7800.

Label	Description
CDIN1	CD-IN Connector
CN1	Parallel Port Connector
CN2	IDE Connector
CN7	SUS LED
CN8,11	Serial Port 1,2
CN12	ATX Power On/Off Button Connector
CN16	DIN Connector for Keyboard/Mouse
CN20	External Switch and Indicators
CN21,36	IEEE-1394 Connector
CN24	FDD Connector
CN26	ATX Power Connector
CN30	Power Connector
CN32	Audio Connector
CN33	4 Channels of composite video in Connector
CN35	USB Connector
CN37	LAN Connector
CN43	Compact Flash
CN44	CardBus/PCMCIA Connector
CN45	Digital I/O
CON1	VGA Connector
FAN1,3	Fan Connectors
IR1	IrDA Connector
PCI1	Specific PCI Slot

3.1 Floppy Disk Drive Connector

NOVA-7800 board equipped with a 34-pin daisy-chain driver connector cable.

• **CN24 : FDD CONNECTOR**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	2	REDUCE WRITE
3	GROUND	4	N/C
5	GROUND	6	DS1#
7	GROUND	8	INDEX#
9	GROUND	10	MOTOR ENABLE A#
11	GROUND	12	DRIVE SELECT B#
13	GROUND	14	DRIVE SELECT A#
15	GROUND	16	MOTOR ENABLE B#
17	GROUND	18	DIRECTION#
19	GROUND	20	STEP#
21	GROUND	22	WRITE DATA#
23	GROUND	24	WRITE GATE#
25	GROUND	26	TRACK 0#
27	GROUND	28	WRITE PROTECT#
29	N/C	30	READ DATA#
31	GROUND	32	SIDE 1 SELECT#
33	N/C	34	DISK CHANGE#

3.2 Video IN Connector

NOVA-7800 is equipped with 4 channels of composite video connector(BT878A).

• **CN33: Capture IN**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	AVIN0	2	GROUND
3	AVIN1	4	GROUND
5	AVIN2	6	GROUND
7	AVIN3	8	GROUND

3.3 Ultra ATA33/66/100 IDE Disk Drive Connector

You can attach one IDE(Integrated Device Electronics) hard disk drives to the NOVA-7800 IDE controller.

• CN2 : Primary IDE Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RESET#	2	GROUND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GROUND	20	N/C
21	N/C	22	GROUND
23	IOW#	24	GROUND
25	IOR#	26	GROUND
27	CHRDY	28	GROUND
29	DACK	30	GROUND
31	INTERRUPT	32	GROUND
33	SA1	34	P66DET
35	SA0	36	N/C
37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GROUND

3.4 Parallel Port

This port is usually connected to a printer, The NOVA-7800 includes an on-board parallel port, and accessed through a 26-pin flat-cable connector CN1. Three modes – SPP, EPP and ECP – are supported.

• **CN1 : Parallel Port Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	STROBE#	14	AUTO FORM FEED #
2	DATA 0	15	ERROR#
3	DATA 1	16	INITIALIZE
4	DATA 2	17	PRINTER SELECT LN#
5	DATA 3	18	GROUND
6	DATA 4	19	GROUND
7	DATA 5	20	GROUND
8	DATA 6	21	GROUND
9	DATA 7	22	GROUND
10	ACKNOWLEDGE	23	GROUND
11	BUSY	24	GROUND
12	PAPER EMPTY	25	GROUND
13	PRINTER SELECT	26	N/C

3.5 USB Port Connector

The NOVA-7800 provides two USB ports(USB 1.1 compliant).

• **CN35 : USB 8-PIN HEADER**

PIN NO.	DESCRIPTION
A1	VCC
A2	DATA0-
A3	DATA0+
A4	GROUND
B1	VCC
B2	DATA0-
B3	DATA0+
B4	GROUND

3.6 Serial Ports

The NOVA-7800 offers two high speed NS16C550 compatible UARTs with Read/Receive 16 byte FIFO in each serial port.

• **CN8 : D SUB 9-PIN Connector**

PIN NO.	DESCRIPTION
1	DATA CARRIER DETECT (DCD)
2	RECEIVE DATA (RXD)
3	TRANSMIT DATA (TXD)
4	DATA TERMINAL READY (DTR)
5	GROUND
6	DATA SET READY (DSR)
7	REQUEST TO SEND (RTS)
8	CLEAR TO SEND (CTS)
9	RING INDICATOR (RI)

• **CN11 : 10-pin Connector**

PIN NO.	DESCRIPTION
1	DATA CARRIER DETECT (DCD)
2	RECEIVE DATA (RXD)
3	TRANSMIT DATA (TXD)
4	DATA TERMINAL READY (DTR)
5	GROUND
6	DATA SET READY (DSR)
7	REQUEST TO SEND (RTS)
8	CLEAR TO SEND (CTS)
9	RING INDICATOR (RI)
10	N/C

3.7 Power Connector

The NOVA-7800 has one power connector for power supply.

• **CN30 : Power Supply Connector**

PIN NO.	DESCRIPTION
1	VCC12V
2	GROUND
3	GROUND
4	VCC5V

• **CN26 : ATX Power Connector**

PIN NO.	DESCRIPTION
1	VCC5VSB
2	PS_ON
3	GROUND

3.8 Keyboard Connector

The NOVA-7800 provides 6-PIN MIN-DIN keyboard/mouse connector.

• **CN16 : 6-pin Mini-DIN Keyboard/Mouse Connector**

PIN NO.	DESCRIPTION
1	KEYBOARD DATA
2	MOUSE DATA
3	GROUND
4	+5V
5	KEYBOARD CLOCK
6	MOUSE CLOCK

3.9 IrDA Infrared Interface Port

The NOVA-7800 built-in a IrDA port which support Serial Infrared(SIR) or Amplitude Shift Keyed IR(ASKIR) interface. When use the IrDA port have to set SIR or ASKIR model in the BIOS's Peripheral Setup's COM 2. Then the normal RS-232 COM 2 will be disabled.

• **IR1 : IrDA connector**

PIN NO.	DESCRIPTION
1	VCC5V
2	N/C
3	IR-RX
4	GROUND
5	IR-TX

3.10 Fan Connector

The NOVA-7800 provides CPU cooling fan connector and system fan connector. CPU connectors can supply 12V/500mA while the fan's rotation is in full speed.

• **FAN1, FAN3 : Fan Connector**

PIN NO.	DESCRIPTION
1	SENSOR
2	12V
3	GROUND

3.11 Audio Connectors

The NOVA-7800 has a built-in AUDIO chipset (CMEDIA CMI8738LX); connector directly connects to the pin-header (CN32). The Audio chipset can support 5.1 channel sounds that include LINEOUT, REAR, and CENTER/BASS .

• **CN32 : Audio Connector (2x8_2.00mm)**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LINEOUT_L	2	GROUND
3	LINEOUT_R	4	GROUND
5	CENTER	6	BASS
7	GROUND	8	GROUND
9	LININ_L	10	LINEIN_R
11	GROUND	12	GROUND
13	REAR_L	14	REAR_R
15	MIN_IN	16	GROUND

• **CDIN1 : CD-IN**

PIN NO.	DESCRIPTION
1	CD LEFT SIGNAL
2	GROUND
3	GROUND
4	CD RIGHT SIGNAL

3.12 VGA Connector

NOVA-7800 built-in 15-pin VGA connector directly to your CRT monitor.

• CON1 : 15-pin Female Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RED	2	GREEN
3	BLUE	4	N/C
5	GROUND	6	GROUND
7	GROUND	8	GROUND
9	VCC	10	GROUND
11	N/C	12	DDC DAT
13	HSYNC	14	VSYNC
15	DDCCLK		

3.13 LAN RJ45 Connector

NOVA-7800 is equipped with built-in one 10/100Mbps Ethernet Controller. You can connect it to your LAN through RJ45 LAN connector. The pin assignments are as following:

• CN37 : Intel 82562ET LAN RJ45 Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	TX+	5.	N/C
2	TX-	6.	RX-
3.	RX+	7.	N/C
4.	N/C	8.	N/C

3.14 Compact Flash Connector--TYPEII

The NOVA-7800 supports one CompactFlash socket that be provided from IDE2. You must set the jumper to avoid the conflict. (for example: master or slave)

• CN43 : CompactFlash Socket

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	26	VCC-IN CHECK2
2	DATA3	27	DATA11
3	DATA4	28	DATA12
4	DATA5	29	DATA13
5	DATA6	30	DATA14
6	DATA7	31	DATA15
7	HDC_CS0#	32	HDC_CS1#
8	N/C	33	N/C
9	GROUND	34	IOR#
10	N/C	35	IOW#
11	N/C	36	N/C
12	N/C	37	INTERRUPT
13	+5V	38	+5V
14	N/C	39	CSEL
15	N/C	40	N/C
16	N/C	41	RESET#
17	N/C	42	IORDY
18	SA2	43	N/C
19	SA1	44	+5V
20	SA0	45	HDD_ACTIVE#
21	DATA0	46	N/C
22	DATA1	47	DATA8
23	DATA2	48	DATA9
24	N/C	49	DATA10
25	VCC-IN CHECK2	50	GROUND

3.15 External Switches and Indicators

There are several external switches and indicators for monitoring and controlling your CPU board. All the functions are in the CN7, CN12, CN20 connector.

• **Suspend Led Connector(CN7)**

PIN NO.	DESCRIPTION
1	LED+
2	LED-

• **ATX Power On/Off Button Connector(CN12)**

PIN NO.	DESCRIPTION
1	PWR_BUTTON+
2	GROUND

• **CN20 : Multi Panel**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1.	POWER-LED +	2	SPEAKER -
3.	N/C	4	N/C
5.	POWER-LED -	6	N/C
7.	KEYLOCK+	8	SPEAKER +5V
9.	KEYLOCK-	10	RESET SW
11.	GROUND	12	RESET SW GND
13	HDD LED+	14	HDD LED -

3.16 IEEE-1394 Connector

NOVA-7800 is equipped with IEEE1394 controller (TI TSB43AA22). You can connect it to your 1394 device through CN21, 36 connector. The pin assignments are as follows:

• **CN21 : 1394 connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1.	VCC12V	2	GROUND
3.	TPB-	4	TPB+
5.	TPA-	6	TPA+
7.	NC/FG	8	NC/FG

• **CN36 : 1394 connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1.	VCC12V	2	GROUND
3.	TPB-	4	TPB+
5.	TPA-	6	TPA+

3.17 CardBus/PCMCIA Connector

The NOVA-7800 built-in a CardBus/PCMCIA interface connector.

• **CN44: CardBus/PCMCIA Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	2	D3
3	D4	4	D5
5	D6	6	D7
7	CE1#	8	A10
9	OE#	10	A11
11	A9	12	A8
13	A13	14	A14
15	WE#	16	READY
17	VCC	18	VCC
19	A16	20	A15
21	A12	22	A7
23	A6	24	A5
25	A4	26	A3
27	A2	28	A1
29	A0	30	D0

31	D1	32	D2
33	WP	34	GROUND
35	GROUND	36	CD1#
37	D11	38	D12
39	D13	40	D14
41	D15	42	CE2#
43	VS1#	44	IORD#
45	IOWR#	46	A17
47	A18	48	A19
49	A20	50	A21
51	VCC	52	VCC
53	A22	54	A23
55	A24	56	A25
57	VS2#	58	RESET
59	WAIT#	60	INPACK#
61	REG#	62	BVD2
63	BVD1	64	D8
65	D9	66	D10
67	CD2#	68	GROUND
69	GROUND	70	GROUND

3.18 Digital I/O

One characteristic of digital circuit is its fast response to high or low signal. This kind of response is highly needed for harsh and critical industrial operating environment. That's why we design 4-bit digital inputs and 4-bit digital outputs on the NOVA-7800. Digital Input and Output, generally, are control signals. You can use these signals to control external devices that needs On/Off circuit or TTL devices. We provide "BIOS Call " for DIO's reading.

READ		WRITE	
Bit0	DIN0	Bit0	DO0
Bit1	DIN1	Bit1	DO1
Bit2	DIN2	Bit2	DO2
Bit3	DIN3	Bit3	DO3

• **CN45: Digital I/O**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	2	VCC5V
3	DO3	4	DO2
5	DO1	6	DO0
7	DIN3	8	DIN2
9	DIN1	10	DIN0

Chapter 4. AMI BIOS Setup

4.1 Introduction

This chapter discusses the Setup program built into the BIOS, which allows users to configure the system. This configuration is then stored in battery-backed CMOS RAM so that Setup information is retained whilst the power is off.

4.2 Starting Setup

The BIOS is immediately active when you turn on the computer. While the BIOS is activated, the Setup program can be entered in one of two ways:

1. By pressing immediately after switching the system on, or
2. by pressing the key when the following message appears briefly at the bottom of the screen during the POST (Power On Self-Test).

Press DEL to run SETUP.

4.3 Setup Summary

Standard CMOS Setup:

Standard CMOS Setup to change time, date, hard disk type, etc.

Advanced CMOS Setup:

Advanced CMOS Setup to configure system options.

Advanced Chipset Setup:

Advanced Chipset Setup to configure chipset features.

Power Management Setup:

Power Management Setup to configure power management features.

PCI / Plug and Play Setup:

Configures PCI / Plug and Play features.

Peripheral Setup:

Configures peripheral features.

Hardware Monitor Setup:

Configures hardware monitor features.

Auto-Detect Hard Disks:

Selecting these options allow the user to configure the drive named in the option. Select Auto-Detect Hard Disks to allow AMIBIOS to automatically configure the drive. A list of drive parameters then appears on the screen.

Change User Password:

Change the user password.

Change Supervisor Password:

Change the supervisor password.

Auto Configuration with Optimal Settings:

Load configuration settings that ensure the highest performance.

Auto Configuration with Fail Safe Settings:

Load fails-afe configuration settings.

Save Settings and Exit:

Write the current settings to CMOS and exit.

Exit Without Saving:

Exit without saving the current settings.

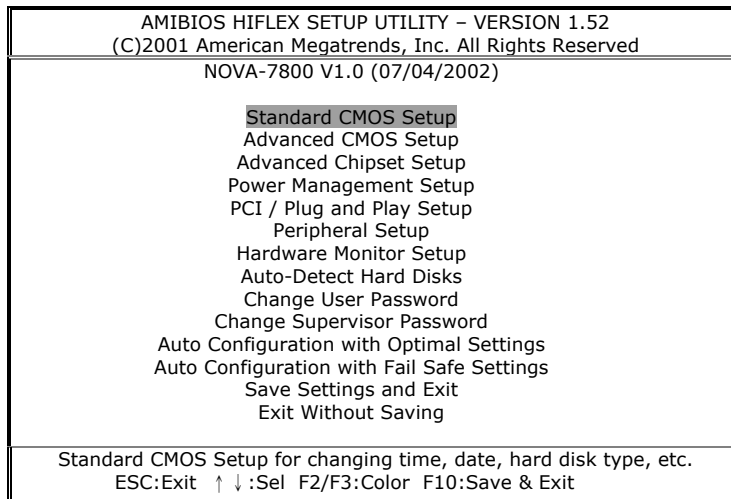


Figure 1: The Main Menu

4.4 Standard CMOS Setup Selections

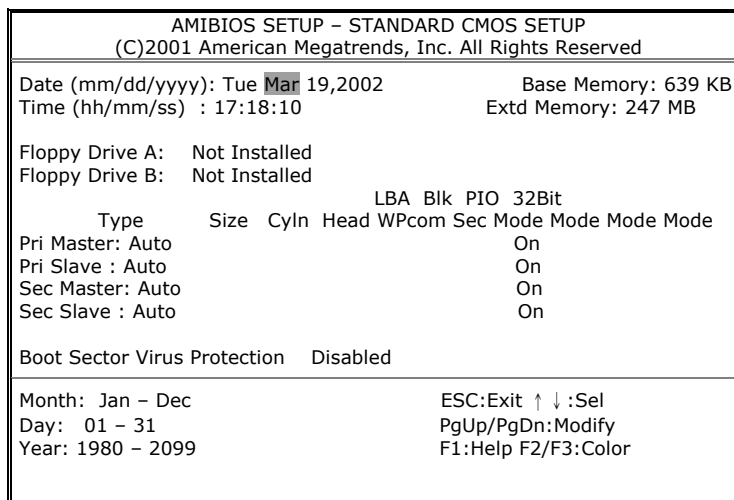


Figure 2: Standard CMOS Setup

Date(mm/dd/yyyy)

Set the system date.

Time(hh/mm/ss)

Set the system time.

Floppy A, B

Move the cursor to these fields and select floppy type.

Primary/Secondary Master/Slave LBA Mode

LBA (Logical Block Addressing) is a new IDE HDD access method developed to overcome the 528-megabyte capacity bottleneck. If your IDE hard disk capacity is greater than 528MB, AMIBIOS can enable this LBA mode feature. The option is only for Primary Master IDE LBA mode.

Primary/Secondary Master/Slave Block Mode

If your hard disk drive supports IDE block transfer mode, enable this option for a faster IDE hard disk drive transfer rate. The option is only for Primary Master Block mode.

Primary/Secondary Master/Slave PIO Mode

This option enables Primary Master IDE PIO mode on the IDE, which can set proper cycle timings. The cycle timing between the IDE PIO mode value and IDE cycle timing is shown below :

Mode 0 -> Timing (600ns) Mode 1 -> Timing (383ns)
Mode 2 -> Timing (240ns) Mode 3 -> Timing (180ns)
Mode 4 -> Timing (120ns) Mode 5 -> Timing (60ns)

Primary/Secondary Master/Slave 32Bit Mode

This option enables Primary Master IDE 32-bit data transfers on the IDE data port. If disabled, 16-bit data transfer is used by the BIOS. 32-bit data transfers can only be enabled if IDE prefetch mode is also enabled.

Boot Sector Virus Protection

When this option is enabled, AMIBIOS issues a warning when

any program or virus issues a Disk Format command or attempts to write to the boot sector of the hard disk drive. The settings are Disabled, Enabled.

Base/Extd Memory

Displays the amount of conventional/extended memory detected during boot up.

4.5 Advanced CMOS Setup Selections

AMIBIOS SETUP – ADVANCED CMOS SETUP (C)2001 American Megatrends, Inc. All Rights Reserved		
Quick Boot	Enabled	Available Options: Disabled > Enabled
1st Boot Device	Disabled	
2nd Boot Device	Disabled	
3rd Boot Device	Disabled	
Try Other Boot Devices	Yes	
Floppy Access Control	Read-Write	
Hard Disk Access Control	Read-Write	
S.M.A.R.T. for Hard Disks	Disabled	
BootUP Num-Lock	On	
Floppy Drive Seek	Disabled	
PS/2 Mouse Support	Enabled	
System Keyboard	Present	
Primary Display	VGA/EGA	
Password Check	Setup	
Boot To OS/2	No	
Wait For 'F1' If Error	Enabled	
Hit 'DEL' Message Display	Enabled	
L1 Cache	WriteBack	
L2 Cache	WriteBack	
System BIOS Cacheabled	Disable	
C000 16K Shadow	Enabled	
C400 16K Shadow	Enabled	
C800 16K Shadow	Enabled	
CC00 16K Shadow	Disabled	
D000 16K Shadow	Disabled	
D400 16K Shadow	Disabled	
D800 16K Shadow	Disabled	
DC00 16K Shadow	Disabled	
		ESC:Exit ↑ ↓ :Sel PgUp/PgDn:Modify F1:Help F2/F3:Color

Figure 3: Advance CMOS Setup

Quick Boot

When Quick Boot is selected, DRAM testing function will be disabled.

1st Boot Device

This option sets the type of device for the first boot drives that the AMIBIOS attempts to boot from after AMIBIOS POST completes.

The Choice: Disabled, IDE-0, IDE-1, IDE-2, IDE-3, Floppy, ARMD-FDD, ARMD-HDD, CDROM, SCSI.

2nd Boot Device

This option sets the type of device for the second boot drives that the AMIBIOS attempts to boot from after AMIBIOS POST completes.

The Choice: Disabled, IDE-0, IDE-1, IDE-2, IDE-3, Floppy, ARMD-FDD, ARMD-HDD, CDROM.

3rd Boot Device

This option sets the type of device for the third boot drives that the AMIBIOS attempts to boot from after AMIBIOS POST completes.

The Choice: Disabled, IDE-0, IDE-1, IDE-2, IDE-3, Floppy, ARMD-FDD, ARMD-HDD, CDROM.

Try Other Boot Devices

Set this option to Yes to instruct AMIBIOS to attempt to boot from any other drive in the system if it cannot find a boot drive among the drives specified in the 1st Boot Device, 2nd Boot Device, 3rd Boot Device, 4th Boot Device options.

The Choice: Yes or No.

Floppy Access Control

This option specifies the read/write access that is set when booting from a floppy drive.

Hard Disk Access Control

This option specifies the read/write access that is set when

booting from a hard disk drive.

S.M.A.R.T. for Hard Disks

Self-Monitoring, Analysis and Reporting Technology. This option can help the BIOS to warn the user of a possible device failure and give the user a chance to back up the device before the failure actually happens.

The Choice: are Auto, Disabled, Enabled.

Floppy Drive Seek

Set this option to Enabled to specify that floppy drive A: will perform a Seek operation at system boot.

The Choice: are Enabled or Disabled.

BootUp Num-Lock

When this option is selected, Num Lock is turned off when the system is powered on so the user can use the arrow keys on both the numeric keypad and the keyboard.

PS/2 Mouse Support

When this option is enabled, BIOS supports a PS/2- type mouse.

System Keyboard

This option does not specify if a keyboard is attached to the computer. Rather, it specifies if error messages are displayed if a keyboard is not attached. This option permits you to configure workstation with no keyboard.

The Choice: Absent, Present.

Primary Display

Select this option to configure the type of monitor attached to the computer.

The Choice: Monochrome, Color 40x25, Color 80x25, VGA/PGA/EGA , or Not Install.

Password Check

This item allows you Setup/Always Password Check.

Boot To OS/2

Set this option to Enabled if running OS/2 operating system and using more than 64MB of system memory on the motherboard.

The Choice: Disabled or Enabled.

Wait For 'F1' If Error

If this option is enabled, AMIBIOS waits for the end user to press <F1> before continuing. If this option is disabled, AMIBIOS continues the boot process without waiting for <F1> to be pressed.

The Choice: Disabled or Enabled.

Hit 'DEL' Message Display

Disabling this option prevents "Hit if you want to run Setup" from appearing when the system boots.

The Choice: Disabled or Enabled.

L1 Cache

The option Disable/WriteThru/WriteBack the internal cache memory in the processor.

L2 Cache

The option Disable/WriteThru/WriteBack the secondary cache memory.

System BIOS Cacheable

When this option is set to enabled, the System ROM area from F0000-FFFFF is copied (shadowed) to the RAM for faster execution.

C000,16k Shadow

When this option is set to enabled, the Video ROM area from C0000-C3FFF is copied (shadowed) to the RAM for faster execution. (turn to the next page for detail description)

- Disabled : The contents of the video ROM are not copied to the RAM.
- Cached: The contents of the video ROM area from C0000h - C3FFFh are copied from the ROM to the RAM and can be written to or read from the cache memory.
- Enabled: The contents of the video ROM area from C0000h - C3FFFh are copied (shadowed) from the ROM to the RAM for faster execution.

C400,16k Shadow

When this option is set to enabled, the Video ROM area from C4000-C7FFF is copied (shadowed) to the RAM for faster execution.

- Disabled : The contents of the video ROM are not copied to the RAM.
- Cached: The contents of the video ROM area from C4000h - C7FFFh are copied from the ROM to the RAM and can be written to or read from the cache memory.
- Enabled: The contents of the video ROM area from C4000h - C7FFFh are copied (shadowed) from the ROM to the RAM for faster execution.

C800,16k Shadow

These options enable shadowing of the contents of the ROM area named in the option title. The settings are Enable Disable, Cached. The ROM area that is not used by ISA adapter cards will be allocated to PCI adapter cards.

CC00,16k Shadow

These options enable shadowing of the contents of the ROM area named in the option title. The settings are Enable Disable, Cached. The ROM area that is not used by ISA adapter cards will be allocated to PCI adapter cards.

D000,16k Shadow

These options enable shadowing of the contents of the ROM area named in the option title. The settings are Enable Disable, Cached. The ROM area that is not used by ISA adapter cards will be allocated to PCI adapter cards.

D400,16k Shadow

These options enable shadowing of the contents of the ROM area named in the option title. The settings are Enable Disable, Cached. The ROM area that is not used by ISA adapter cards will be allocated to PCI adapter cards.

D800,16k Shadow

These options enable shadowing of the contents of the ROM area named in the option title. The settings are Enable Disable, Cached. The ROM area that is not used by ISA adapter cards will be allocated to PCI adapter cards.

DC00,16k Shadow

These options enable shadowing of the contents of the ROM area named in the option title. The settings are Enable Disable, Cached. The ROM area that is not used by ISA adapter cards will be allocated to PCI adapter cards.

4.6 Advanced Chipset Setup Selections

AMIBIOS SETUP – ADVANCED CHIPSET SETUP (C)2001 American Megatrends, Inc. All Rights Reserved		
CPU Sleep Step Mode	Disable	Available Options: > Disabled Enabled
Memory Hole	Disable	
SDRAM Timing by SPD	Disabled	
DRAM Refresh	15.6uS	
DRAM Cycle time (SCLKs)	7/9	
CAS# Latency (SCLKs)	3	
RAS to CAS delay (SCLKs)	3	
SDRAM RAS# Precharge (SCLKs)	3	
Internal Graphics Mode Size	1MB	
Display Cache Window Size	64MB	
AGP Aperture Window	64MB	
USB Function	All USB Port	
USB Device Legacy Support	Disabled	
Port 64/60 Emulation	Disabled	
		ESC:Exit ↑ ↓ :Sel PgUp/PgDn:Modif y F1:Help F2/F3:Color

Figure 4: Advanced Chipset Setup

CPU Sleep Step Mode

Select the CPU is in Maximum Performance Mode or Battery Optimized Mode.

Memory Hold

This field allows you to reserve an address space for ISA devices that require it.

The Choice: Disabled], 15MB-16MB

SDRAM Timing by SPD

This sets the optimal timings for items "DRAM Refresh", "DRAM Cycle time", "CAS# Latency", "RAS to CAS delay" and "SDRAM

RAS# Precharge", depending on the memory modules that you are using.

DRAM Cycle time (SCLKs)

This feature controls the number of SDRAM clocks used for SDRAM parameters Tras and Trc. Tras specifies the minimum clocks required between active command and precharge command. Trc specifies the minimum clocks required between active command and re-active command.

CAS# Latency (SCLs)

This controls the latency between the SDRAM read command and the time that the data actually becomes available.

RAS to CAS delay (SCLKs)

This controls the latency between the SDRAM active command and the read/write command.

SDRAM RAS# Precharge (SCLKs)

This controls the idle clocks after issuing a precharge command to the SDRAM.

Display Cache Window Size

This feature allows you to select the size of mapped memory for Display Cache data.

AGP Aperture Window

This feature allows you to select the size of mapped memory for AGP graphic data.

USB Function

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.

USB Device Legacy Support

This motherboard support Universal Serial Bus (USB) devices. If detected, USB controller legacy mode will be enabled. If not detected, USB controller legacy mode will be disabled.

4.7 Power Management Setup Selections

AMIBIOS SETUP – POWER MANAGEMENT SETUP (C)2001 American Megatrends, Inc. All Rights Reserved		
ACPI Aware O/S	No	Available Options: > No Yes
Sleep State	S1/POS	
USB KB/MS wakeup From S3	Disable	
Power Management/APM	Enabled	
Suspend Time Out	Disabled	
Keyboard & PS/2 Mouse	Monitor	
FDC/LPT/COM Ports	Monitor	
SB & MSS Audio Ports	Ignore	
MIDI Ports	Ignore	
ADLIB Ports	Ignore	
Primary Master IDE	Monitor	
Primary Slave IDE	Ignore	
Secondary Master IDE	Monitor	
Secondary Slave IDE	Ignore	
System Thermal	Ignore	
Power Button Function	ON/Off	
Restore on AC/Power Loss	Last State	
Wake Up On Ring	Disabled	ESC:Exit ↑ ↓:Sel
Wake Up On Lan	Disabled	PgUp/PgDn:Modify
Wake Up On PME	Disabled	F1:Help F2/F3:Color
Resume By Alarm	Disabled	
Alarm Date	15	
Alarm Hour	12	
Alarm Minute	30	
Alarm Second	30	
Power Type Select	AT	

Figure 5: Power Management Setup

ACPI Aware O/S

This feature is switch of ACPI function.

Sleep State

This feature is switch of STR (S3) or POS (S1) function.

USB KB/MS wakeup From S3

This option set to "Enabled", using USB keyboard or USB mouse can wake up system , when system entry to S3 mode.

Power Management/APM

Set this option to Enabled to run APM (Advanced Power Management).

Suspend Time Out

This option specifies the length of a period of system inactivity while in Standby state. When this length of time expires, the computer enters Suspend power state.

Keyboard & PS/2 Mouse

Enabling the option allow the IRQ input to be monitored for both inactive for entering Auto_mode/SMI_mode and active for entering Normal_mode.

FDC/LPT/COM Ports

Enabling the option allow the IRQ input to be monitored for both inactive for entering Auto_mode/SMI_mode and active for entering Normal_mode.

SB & MSS Audio Ports

Enabling the option allow the IRQ input to be monitored for both inactive for entering Auto_mode/SMI_mode and active for entering Normal_mode.

MIDI Ports

Enabling the option allow the IRQ input to be monitored for both inactive for entering Auto_mode/SMI_mode and active for entering Normal_mode.

ADLIB Ports

Enabling the option allow the IRQ input to be monitored for both inactive for entering Auto_mode/SMI_mode and active for entering Normal_mode.

Primary Master IDE

Enabling the option allow the IRQ input to be monitored for both inactive for entering Auto_mode/SMI_mode and active for entering Normal_mode.

Primary Slave IDE

Enabling the option allow the IRQ input to be monitored for both inactive for entering Auto_mode/SMI_mode and active for entering Normal_mode.

Secondary Master IDE

Enabling the option allow the IRQ input to be monitored for both inactive for entering Auto_mode/SMI_mode and active for entering Normal_mode.

Secondary Slave IDE

Enabling the option allow the IRQ input to be monitored for both inactive for entering Auto_mode/SMI_mode and active for entering Normal_mode.

Power Button Function

This option specifies how the power button mounted on the external of the computer chassis is used.

Wake Up On Ring

Ring Resume From Soft Off

Wake Up On Lan

LAN Resume From Soft Off

Wake Up On PME

PME# Resume From Soft Off

Resume By Alarm

When this option is enabled, system will wakeup from soft off mode according to the time you set.

Alarm Date

You can set time according to date.

Alarm Hour

You can set time according to hour.

Alarm Minute

You can set time according to minute.

Alarm Second

You can set time according to second.

Power Type Select

Select the type of power that you use.

4.8 PCI / Plug and Play Setup Selections

AMIBIOS SETUP – PCI / PLUG AND PLAY SETUP (C)2001 American Megatrends, Inc. All Rights Reserved		
Plug and Play Aware O/S	No	Available Options: No > Yes
Clear NVRAM on Every Boot	No	
On Board Audio Controller	Enabled	
On Board IEEE1394 Controller	Enabled	
On Board PCMCIA Controller	Enabled	
On Board Video Controller	Enabled	
PCI Latency Timer (PCI Clocks)	64	
Primary Graphics Adapter	External PCI	
PCI VGA Palette Snoop er	Disabled	
Allocate IRQ to PCI VGA	No	
OffBoard PCI IDE Card	Auto	
OffBoard PCI IDE Primary IRQ	Disabled	
OffBoard PCI IDE Secondary IRQ	Disabled	
PCI Slot1 IRQ Priority	Auto	
PCI Slot2 IRQ Priority	Auto	
PCI Slot3 IRQ Priority	Auto	
PCI Slot4 IRQ Priority	Auto	
DMA Channel 0	PnP	
DMA Channel 1	PnP	
DMA Channel 3	PnP	
DMA Channel 5	PnP	
DMA Channel 6	PnP	
DMA Channel 7	PnP	
IRQ3	PCI/PnP	
IRQ4	PCI/PnP	
IRQ5	PCI/PnP	
IRQ7	PCI/PnP	
IRQ9	PCI/PnP	
IRQ10	PCI/PnP	
IRQ11	PCI/PnP	
IRQ14	PCI/PnP	
IRQ15	PCI/PnP	

ESC:Exit ↑ ↓:Sel
PgUp/PgDn:Modify
F1:Help F2/F3:Color

Figure 6: PCI / Plug and Play Setup

Plug and Play Aware O/S

If this option is enabled, BIOS will configure only PnP ISA boot devices (i.e. all PnP ISA cards which has boot flag set). And PnP aware OS will configure all other devices. If disabled, BIOS will configure all devices.

Clear NVRAM on Every Boot

When this option is set to Yes, system can auto clear NVRAM.

PCI Latency Timer (PCI Clocks)

This option specifies the latency timings (in PCI clocks) for PCI devices installed in the PCI expansion slots.

The Choice: 32, 64, 96, 128, 160, 192, 224, or 248.

PCI VGA Palette Snoop

If enabled, PCI will allow VGA palette signals to go to the ISA bus.

Allocate IRQ to PCI VGA

Set this option to Yes to allocate an IRQ to the VGA device on the PCI bus.

The Choice: Yes or No.

PCI Slot1/2/3/4 IRQ Priority

The option specifies the IRQ priority for PCI device installed in the PCI expansion slot.

The Choice: Auto, (IRQ) 3, 4, 5, 7, 9, 10, and 11, in priority order.

DMA Channel 0/1/3/5/6/7

The option allows you to specify the bus type used by each DMA channel. The settings are PnP or ISA/EISA.

IRQ3/4/5/7/9/10/11/14/15

The option specify the bus that the specified IRQ line is used on. The option allow you to reserve IRQs for legacy ISA adapter cards. The option determine if AMIBIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the pool, the end user can use the option to reserve the IRQ by assigning an ISA/EISA setting to it. Onboard I/O is configured by AMIBIOS. All IRQs used by onboard I/O are confogured as PCI/PnP.

4.9 Peripheral Setup Selections

AMIBIOS SETUP – PERIPHERAL SETUP (C)2001 American Megatrends, Inc. All Rights Reserved		
OnBoard FDC	Enabled	Available Options: Disabled > Enabled
OnBoard Serial PortA	3F8/COM1	
OnBoard Serial PortB	2F8/COM2	
Serial PortB Mode	Normal	
IR Duplex Mode	Half Duplex	
IR Pin Select	IRRX/IRIX	
OnBoard Parallel Port	378	
Paralled Port Mode	Normal	
EPP Version	N/A	
Parallel Port IRQ	3	
Parallel Port DMA Channel	N/A	
On-Chip IDE	Both	
ESC:Exit ↑ ↓:Sel PgUp/PgDn:Modify F1:Help F2/F3:Color		

Figure 7: Peripheral Setup

OnBoard FDC

Set this option to Enabled to enable the floppy drive controller on the motherboard.

The Choice: Auto (AMIBIOS automatically determines if the floppy controller should be enabled), Enabled, or Disabled.

OnBoard Serial PortA/B

This option specifies the base I/O port address of serial port A.

The Choice: are Auto (AMIBIOS automatically determines the correct base I/O port address), Disabled, 3F8h, 2F8h, 2E8h, or 3E8h.

OnBoard Parallel Port

This option specifies the base I/O port address of parallel port on the motherboard.

The Choice: Disabled, 378h, 278h, or 3BCh.

Parallel Port Mode

This option specifies the parallel port mode.

The settings are Normal, Bi-Dir, EPP, ECP.

Normal : The normal parallel port mode is used.

Bi-Dir : Use this setting to support bidirectional transfers on the parallel port.

EPP : The parallel port can be used with devices that adhere to the Enhanced. Parallel Port(EPP) specification. EPP uses the existing parallel port signals to provide asymmetric bidirectional data transfer driven by the host device.

ECP : The parallel port can be used with devices that adhere to the Entended. Capabilities Port(ECP) specification. ECP uses the DMA protocol to achieve data transfer rates up to 2.5 Megabits per second. ECP provides symmetric bidirectional communication.

Parallel Port IRQ

This option specifies the IRQ used by the parallel port.

The Choice: Auto, (IRQ)5, (IRQ)7.

Parallel Port DMA Channel

This option is only available if the setting for the Parallel Port Mode option is ECP. This option sets the DMA channel used by the parallel port.

The Choice: DMA Channel 0, 1, or 3.

On-Chip IDE

This option specifies the IDE channel used by the onboard IDE controller.

The Choice: Disabled, Primary, Secondary.

4.10 Hardware Monitor Setup Selections

AMIBIOS SETUP – HARDWARE MONITOR SETUP (C)2001 American Megatrends, Inc. All Rights Reserved		
CPU Temperature Detected by	CPU	Available Options:
CPU Temperature	31°C/87°F	> CPU
System Temperature	29°C/84°F	Themistor
CPU Fan Speed	6300 RPM	
Chassis Fan Speed	0 RPM	
Vcore	1.399 V	
+ 3.300V	3.349 V	
+ 5.000V	5.070 V	
+12.000V	12.046 V	
+5V SB	4.978 V	
		ESC:Exit ↑ ↓ :Sel
		PgUp/PgDn:Modify
		F1:Help F2/F3:Color

Figure 8: Hardware Monitor Setup

This setup helps users monitor the NOVA-7800 board on board system voltage and fan speed. The function is implemented by on board W83627HF chip. The voltage monitoring will cover V core, +3.3V, SB5V, +5V and +12V. And there is a fan connector for CPU fan.

Appendix A. Watchdog Timer

The Watchdog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, hardware on the board will either perform a hardware reset (cold boot) to bring the system back to a known state.

A BIOS function call (INT 15H) is used to control the Watchdog Timer:

INT 15H :

AH – 6FH
<u>Sub-function:</u>
AL – 2 : Set the Watchdog Timer's period
BL : Time-out value(the time unit--second, is dependent on the item "Watchdog Timer unit (selected in BIOS setup).

You have to call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer will start counting down. When the timer value reaches zero, the system will reset. To ensure that this reset condition does not occur, the Watchdog Timer must be periodically refreshed by calling sub-function 2. However the Watchdog timer will be disabled if you set the time-out value to be zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

Note: *When exiting a program it is necessary to disable the Watchdog Timer, otherwise the system will reset.*

Example program:

```
; INITIAL TIMER PERIOD COUNTER
;
W_LOOP:
    MOV    AX, 6F02H    ;setting the time-out value
    MOV    BL, 30      ;time-out value is 48
seconds
    INT    15H
;
; ADD YOUR APPLICATION PROGRAM HERE
;
    CMP    EXIT_AP, 1  ;is your application over?
    JNE    W_LOOP      ;No, restart your application

    MOV    AX, 6F02H   ;disable Watchdog Timer
    MOV    BL, 0       ;
    INT    15H
;
; EXIT
```

Appendix B. Digital I/O

One characteristic of digital circuit is its fast response to high or low signal. This kind of response is highly needed for harsh and critical industrial operating environment. That's why we design 4-bit digital inputs and 4-bit digital outputs on the NOVA-7800. Digital Input and Output, generally, are control signals. You can use these signals to control external devices that needs On/Off circuit or TTL devices. You can read or write data to the selected address to enable the function of digital IO.

A BIOS function call (INT 15H) is used to control the Watchdog Timer:

INT 15H :

AH - 6FH
<u>Sub-function:</u> AL - 8 : Set the Digital port is INPUT AL : Digital I/O input value

Example program:

```
MOV AX, 6F08H ;setting the Digital port is input
INT 15H ;
```

AL low byte = value

AH - 6FH
<u>Sub-function:</u> AL - 9 : Set the Digital port is OUTPUT BL : Digital I/O output value

Example program:

```
MOV AX, 6F09H ;setting the Digital port is output
MOV BL, 09H ;Digital value is 09H
INT 15H ;
```

Digital Output is 1001b

Appendix C. Address Mapping

IO Address Map

I/O address Range	Description
000-01F	DMA Controller #1
020-021	Interrupt Controller #1, Master
040-05F	8254 timer
060-06F	8042 (Keyboard Controller)
070-07F	Real time Clock, NMI Mask
080-09F	DMA Page Register
0A0-0BF	Interrupt Controller #2
0C0-0DF	DMA Controller #2
0F0	Clear Math Coprocessor Busy
0F1	Reset Math Coprocessor
0F2	Core logic programming configuration
0F8-0FF	Math Coprocessor
1F0-1F8	Fixed Disk
2F8-2FF	Serial Port 2
300-31F	Prototype Card
360-36F	Reserved
378-37F	Parallel Printer Port 1 (LPT2)
3B0-3BF	Monochrome Display and Printer Adapter (LPT1)
3C0-3CF	Reserved
3D0-3DF	Color/Graphics Monitor Adapter
3F0-3F7	Diskette Controller
3F8-3FF	Serial Port 1

1st MB Memory Address Map

Memory address	Description
00000-9FFFF	System memory
A0000-BFFFF	VGA buffer
C0000-C7FFF	VGA BIOS
F0000-FFFFF	System BIOS
1000000-	Extend BIOS

*Default setting

IRQ Mapping Table

IRQ0	System Timer	IRQ8	RTC clock
IRQ1	Keyboard	IRQ9	Available
IRQ2	Cascade to IRQ Controller	IRQ10	Intel 82562ET LAN
IRQ3	COM2	IRQ11	Video IN Device
IRQ4	COM1	IRQ12	PS/2 mouse
IRQ5	Audio Device	IRQ13	FPU
IRQ6	FDC	IRQ14	Primary IDE
IRQ7	Printer	IRQ15	Secondary IDE

DMA Channel Assignments

Channel	Function
0	Available
1	Available
2	Floppy disk (8-bit transfer)
3	Available
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

Appendix D.

How to use Wake-Up Function

The NOVA-7800 provides two kinds of Wake up Function. This page describes how to use Modem Wake-Up and LAN Wake-Up function. Wake-Up function functions when you use ATX power supply.

Wake-Up By Ring:

You must set the option **Power On By Ring** of CMOS SETUP to be enabled. The ATX power supply will be switched on when there is a ring signal detected on pin "RI" of serial port.

Wake-Up On LAN:

When your computer is in power-down status, you can see LAN Link/Active LED is flashing. This status indicates that the LAN chip has entered standby mode and waits for Wake-Up signal. You can use other computers to wake up your computer by sending ID to it.

ID: ID is the address of your system LAN. Every LAN chip has a factory, set ID, which you can find it from network information in WINDOWS.

ID's format is xxxxxxxxxxxx

Example ID: 009027388320

Appendix E.

How to use VIDEO-IN Function

The NOVA-7800 allow users to capture live video from video source such as the CCTV camera as it has four video input channels for surveillance systems.

- **Driver Installation:**

Taking advantage of IEI driver installation program, you will find driver installation a very simple job.

Steps to follow:

1. Insert the IEI Driver CD(4).
2. The window will display the menu of IEI Driver CD. Click "IVC Series".
3. Click "IVC-100/100G/200/200G".
4. Double click the "Windows" folder.
5. Double click " ieisetup.exe".

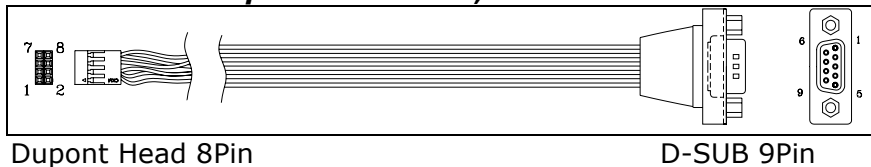
Note: Microsoft Direct X 8.1 or above is needed. The setup program (ieisetup.exe) will prompt you to install Direct X8.1 after the driver installation has been completed. Therefore, IEI strongly recommend you to use ieisetup.exe for driver installation.

- **Demo Programs:**

1. Double click "Demo" folder.
2. Double click "ivc-100.exe".

- **Connection:**

Cable 1: Dupont Head 8Pin, to CPU board.



Pin Definition:

Dupont Head 8Pin

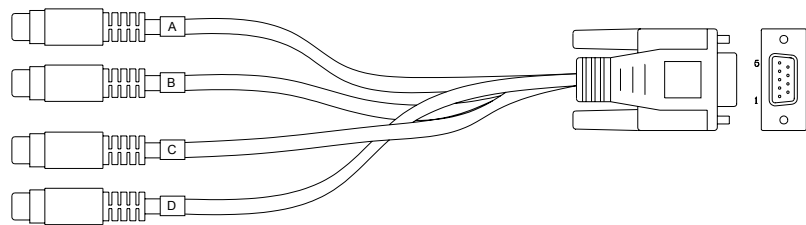
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	AVIN0	2	GROUND
3	AVIN1	4	GROUND
5	AVIN2	6	GROUND
7	AVIN3	8	GROUND

D-SUB 9Pin(for both cable1 and cable2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	AVIN0	2	AVIN1
3	AVIN2	4	AVIN3
5	N.C	6	GROUND
7	GROUND	8	GROUND
9	GROUND		

Cable 2: D-SUB 9Pin, connected to cable 1.

RCA connectors are used to connect video-in source.



RCA connector

D-SUB 9Pin