

NOVA-7897

Socket 370 based embedded board

With Gigabit, 10/100Mbps Ethernet, VGA, Audio

Ver 1.0

Contents

Introduction	6
1.1 Specifications:	7
1.2 What You Have.....	8
Installation	9
2.1 NOVA-7897's Layout.....	9
2.2 Clear CMOS Setup	12
Connection.....	13
3.1 Floppy Disk Drive Connector	14
3.2 Ultra ATA33/66/100 IDE Disk Drive Connector	15
3.3 Parallel Port.....	16
3.4 Serial Ports	17
3.5 Keyboard Connector.....	18
3.6 USB Port Connector.....	18
3.7 IrDA Infrared Interface Port	19
3.8 Fan Connector.....	19
3.9 LAN RJ45 Connector.....	20

@Copyright 2001

All Rights Reserved.

Manual first edition JAN 20, 2002

The information in this document is subject to change without prior notice in order to improve reliability, design and function and does not represent a commitment on the part of the manufacturer.

In no event will the manufacturer be liable for direct, indirect, special, incidental, or consequential damages arising out of the use or inability to use the product or documentation, even if advised of the possibility of such damages.

This document contains proprietary information protected by copyright. All rights are reserved. No part of this manual may be reproduced by any mechanical, electronic, or other means in any form without prior written permission of the manufacturer.

Trademarks

NOVA-7897 is registered trademarks of ICP Electronics Inc., IBM PC is a registered trademark of International Business Machines Corporation. Intel is a registered trademark of Intel Corporation. Award is registered trademarks of Award Software International, Inc. Other product names mentioned herein are used for identification purposes only and may be trademarks and/or registered trademarks of their respective companies.

3.10 VGA Connector.....	21
3.11 Audio Connectors.....	21
3.12 External Switches and Indicators.....	22
3.13 ATX Power Connector.....	23
3.14 PCI Slots.....	24
Award BIOS Setup.....	27
4.1 Introduction.....	27
4.2 Starting Setup.....	27
4.3 Using Setup.....	28
4.4 Main Menu.....	29
4.5 Standard CMOS Setup.....	32
4.6 Advanced BIOS Features.....	36
4.7 Advanced Chipset Features.....	40
4.8 Integrated Peripherals.....	43
4.9 Power Management Setup.....	46
4.10 PnP/PCI Configuration Setup.....	49
4.11 Frequency/Voltage Control.....	51
4.12 Defaults Menu.....	53
4.13 Supervisor/User Password Setting.....	54
4.14 Exit Selecting.....	55

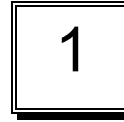
Appendix A. Watchdog Timer.....	56
---------------------------------	----

Appendix B. Address Mapping.....	58
----------------------------------	----

IO Address Map.....	58
1st MB Memory Address Map.....	59
IRQ Mapping Table.....	59
DMA Channel Assignments.....	59

Appendix C.....	60
------------------------	-----------

How to Upgrade a New BIOS.....	60
---------------------------------------	-----------



Introduction

Welcome to the NOVA-7897 Socket 370 Intel® Celeron® and Pentium III® (FC-PGA) with Multimedia & Multi-LAN Ethernet Embedded Little Board. , which comes equipped with high performance Pentium® III, or economical Celeron Processor with the Intel advanced chipset 815E. This product is designed for the system manufacturers, integrators, or VARs that want to provide all the performance, reliability, and quality at a reasonable price.

In addition, the NOVA-7897 provides on chip VGA. The VGA, which provides up to 1600x1200 resolution. The VGA memory is share main memory.

An advanced high performance super I/O chip – W83627 is used in the NOVA-7897 board. Which provide two UARTs are compatible with the NS16C550. The parallel port and IDE interface are compatible with IBM PC/AT architecture's.

NOVA-7897 supports up to six network controllers in total. There are two onboard controllers, Intel 82801BA integrated LAN controller and Intel 82559 controller. Other network controllers are connected through the two special PCI connectors – PCI1 and PCI2, and special designed modules are provided to insert into these connectors. PCI1 can support dual Gigabit LAN module or dual 10/100BASE-TX LAN module, but PCI2 can only support dual 10/100BASE-TX LAN module.

NOVA-7897 uses the advanced INTEL 815E Chipset, which supports up to 133MHz FSB CPU and 133MHz SDRAM memory modules.

1.1 Specifications:

- **CPU** : support socket 370 based CPU,
Celeron® Processor, 700MHz –1.2GHz or above
Pentium® III(FC-PGA) Processor, 1.26GHz or above
- **DMA channels** : 7
- **Interrupt levels** : 15
- **Chipset** : Intel 815E
- **Memory** : Two 168 pin DIMM sockets. The memory capability is up to 512MB/133MHz.
- **Ultra ATA/33/66/100 IDE Interface** : Two PCI Enhanced IDE channels (4 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 1.0 compatible ports.
- **Audio** : **onboard AC'97Codec**, Supports two channel Left/Right Line IN, and Left/Right speaker out, MIC IN, CD IN.
- **Watchdog timer** : Software programmable – enable/disabled. Timer interval is 1 ~ 255 second/minute. 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 and 82559 PCI LAN Controller** : 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
- **Power Consumption** : 5V/9A and 12V/0.1A, as running by PIII 933MHz and 256MB
- **Operating Temperature** : 0° ~ 55° C (CPU needs Cooler)

1.2 What You Have

In addition to this *User's Manual*, the NOVA-7897 package includes the following items:

- NOVA-7897 socket 370 bases Single Board Computer
- One FDD cable
- One HDD cable
- Keyboard / Mouse Adapter Y Cable
- One RS-232 serial ports Cable
- One AUDIO ports Cable

2

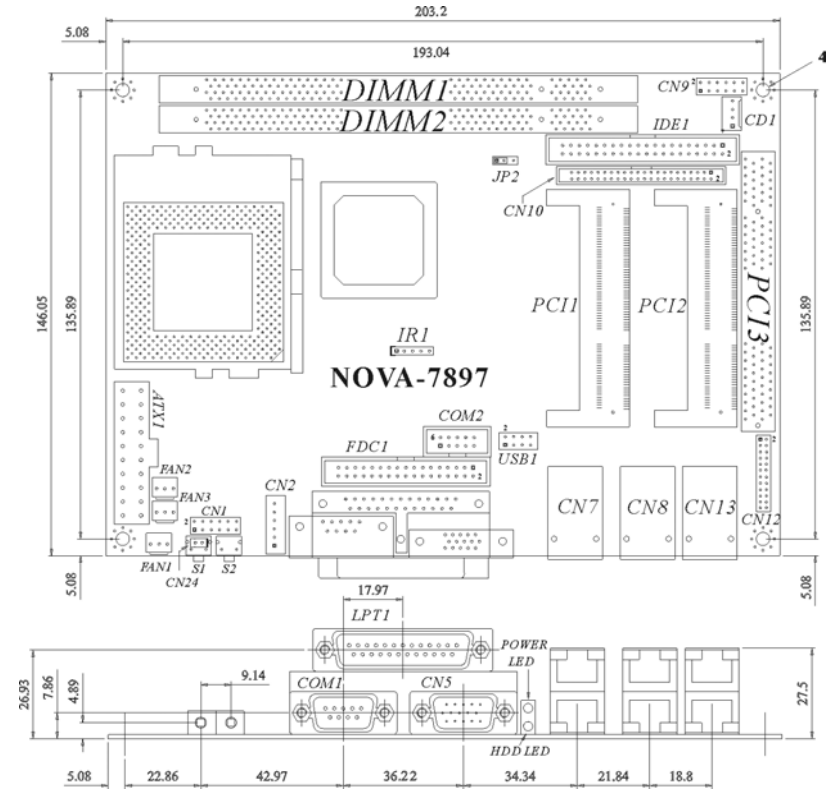
Installation

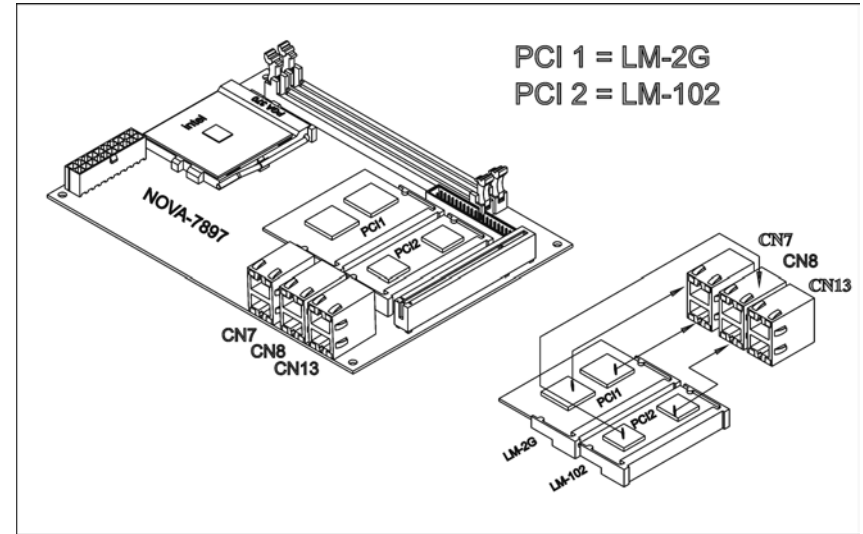
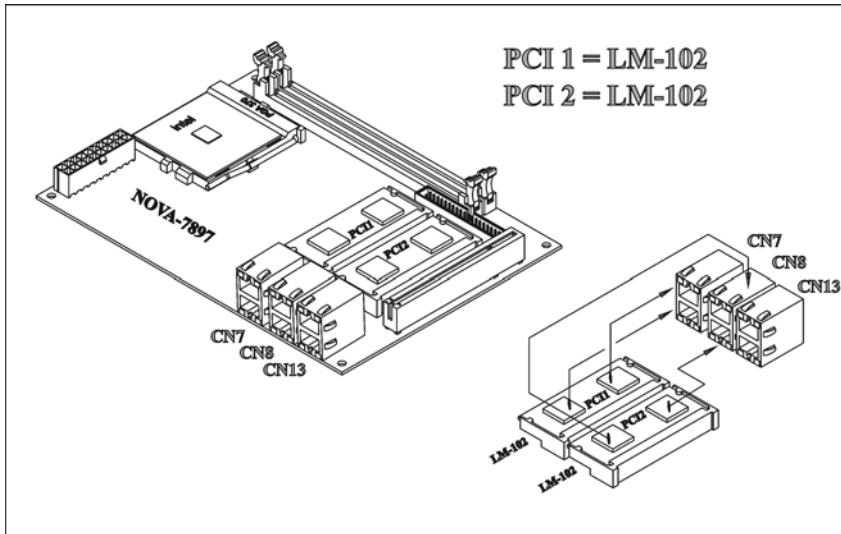
This chapter describes how to install the NOVA-7897. At first, the layout of NOVA-7897 is shown, and the unpacking information that you should be careful is described. The jumpers and switches setting for the NOVA-7897's configuration, such as CPU type selection, system clock setting, and watch dog timer, are also included.

2.1 NOVA-7897's Layout

<This area is intentionally left blank>

NOVA-7897's Layout





2.2 Clear CMOS Setup

The CMOS RAM holds the board's configuration data, which had to be set by means of system BIOS. In case you want to clear the CMOS RAM (for example, if you forgot the password, you should clear the CMOS setting and then set the password again.), you need to close the JP2 for about 3 seconds, then open it again. To keep it under normal operation mode, JP2 must be open.

- **JP2: Clear CMOS Setup**

JP2	DESCRIPTION
1-2	Keep CMOS Setup (Normal Operation)
2-3	Clear CMOS Setup

3

Connection

This chapter describes how to connect peripherals, switches and indicators to the NOVA-7897 board. The following table lists the connectors on NOVA-7897.

Label	Description
ATX1	ATX Power Connector
CD1	CD-IN Connector
CN1	External Switch and Indicators
CN2	DIN Connector for Keyboard/Mouse
CN5	VGA Connector
CN7	LAN Connector for PCI 1
CN8	LAN Connector for PCI 2

NOVA-7897 Socket 370 base embedded board
With Gigabit , 10/100Mbps Ethernet , VGA , Audio

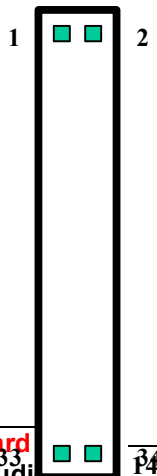
CN9	Audio Connector
CN10	Secondary IDE Connector
CN12	LAN LED Connector
CN13	LAN Connector for Onboard LAN
CN24	ATX Power On/Off Button Connector
COM1	Serial Port 1
COM2	Serial Port 2
FAN1 ~ 3	Fan Connectors
FDC1	FDD Connector
IDE1	Primary IDE Connector
IR1	IrDA Connector
LPT1	Parallel Port Connector
PCI1	Specific PCI Slot
PCI2	Specific PCI Slot
PCI3	Standard PCI Slot
S1	ATX Power On/Off Button
S2	Reset Button
USB1	USB Connector

3.1 Floppy Disk Drive Connector

NOVA-7897 board equipped with a 34-pin daisy-chain driver connector cable.

• FDC1 : FDC CONNECTOR

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	2	REDUCE WRITE
3	GROUND	4	N/C
5	GROUND	6	N/C
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#



NOVA-7897 Socket 370 base embedded board
With Gigabit , 10/100Mbps Ethernet , VGA , Audio

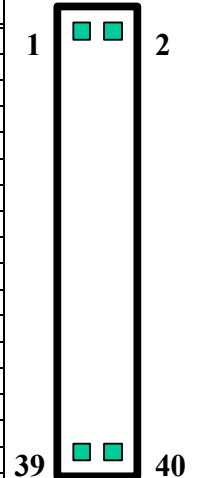
27	GROUND	28	WRITE PROTECT#
29	N/C	30	READ DATA#
31	GROUND	32	SIDE 1 SELECT#
33	N/C	34	DISK CHANGE#

3.2 Ultra ATA33/66/100 IDE Disk Drive Connector

You can attach two IDE(Integrated Device Electronics) hard disk drives to the NOVA-7897 IDE controller.

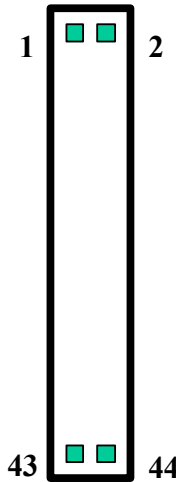
IDE 1 : Primary IDE Connector

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	N/C	28	BALE - DEFAULT
29	N/C	30	GROUND - DEFAULT
31	INTERRUPT	32	IOCS16#-DEFAULT
33	SA1	34	N/C
35	SA0	36	SA2
37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GROUND



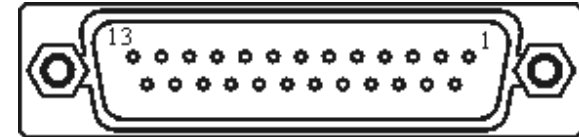
CN10 (IDE 2) : Secondary IDE Connector

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	N/C	28	BALE - DEFAULT
29	N/C	30	GROUND - DEFAULT
31	INTERRUPT	32	IOCS16#-DEFAULT
33	SA1	34	N/C
35	SA0	36	SA2
37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GROUND
41	+5V	42	+5V
43	GROUND	44	NC



LPT1 : Parallel Port Connector

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



3.4 Serial Ports

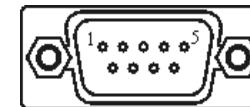
The NOVA-7897 offers two high speed NS16C550 compatible UARTs with Read/Receive 16 byte FIFO in each serial port.

3.3 Parallel Port

This port is usually connected to a printer, The NOVA-7897 includes an on-board parallel port, and accessed through a 26-pin flat-cable connector CN9. Three modes –SPP, EPP and ECP – are supported.

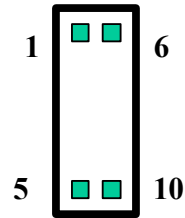
COM1 : D_SUB 9-PIN Connector

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)



COM2 : 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	NC



3.5 Keyboard Connector

The NOVA-7897 provides 6-PIN Header keyboard/mouse connector.

CN2 : 6-pin Mini-DIN Keyboard/Mouse Connector

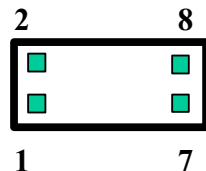
PIN NO.	DESCRIPTION
1	+5V STBY
2	MOUSE DATA
3	MOUSE CLOCK
4	KEYBOARD DATA
5	KEYBOARD CLOCK
6	GROUND

3.6 USB Port Connector

The NOVA-7897 provides Two USB port.

USB1 : USB 8-PIN HEADER

1.	VCC
2.	GROUND
3.	DATA0-
4.	DATA1+
5.	DATA0+
6.	DATA1-
7.	GROUND
8.	VCC



NOVA-7897 Socket 370 base embedded board
With Gigabit , 10/100Mbps Ethernet , VGA , Audio

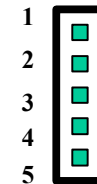
19

3.7 IrDA Infrared Interface Port

The NOVA-7897 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

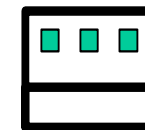


3.8 Fan Connector

The NOVA-7897 provides CPU cooling fan connector and system fan connector. CPU connectors can supply 12V/500mA. The Fan's rotation is in full speed.

FAN1~FAN3 : Fan Connector

PIN NO.	DESCRIPTION
1	Sensor
2	12V
3	Ground



3 2 1

NOVA-7897 Socket 370 base embedded board
With Gigabit , 10/100Mbps Ethernet , VGA , Audio

20

3.9 LAN RJ45 Connector

NOVA-7897 is equipped with built-in two 10/100Mbps Ethernet Controller. You can connect it to your LAN through RJ45 LAN connector. The pin assignments are as following:

CN13(UP) : Intel 82562ET LAN RJ45 Connector
CN13(DOWN) : Intel 82559 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

CN8(UP/DOWN) : LM-102 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

CN7(UP/DOWN) : LM-2G or LM-102 RJ45 Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	TXA+ (TX+)	5.	TXC-(N/C)
2	TXA-(TX-)	6.	TXB-(RX-)
3.	TXB+(RX+)	7.	TXD+(N/C)
4.	TXC+(N/C)	8.	TXD-(N/C)

PS:

LM-102 : Dual Intel 82559 10/100BASE-TX LAN MODULE.
LM-2G : Dual Broadcom Gigabit LAN MODULE.

NOVA-7897 Socket 370 base embedded board
With Gigabit , 10/100Mbps Ethernet , VGA , Audio

21

CN12 : LAN LED Connector

CN7 (UP)	1	ACT+	2.	ACT-
	3	LINK+	4.	LINK-
CN7 (DOWN)	5.	ACT+	6.	ACT-
	7.	LINK+	8.	LINK-
CN8 (UP)	9	ACT+	10	ACT-
	11	LINK+	12	LINK-
CN8 (DOWN)	13	ACT+	14	ACT-
	15	LINK+	16	LINK-
CN13 (UP)	17	ACT+	18	ACT-
	19	LINK+	20	LINK-
CN13 (DOWN)	21	ACT+	22	ACT-
	23	LINK+	24	LINK-

3.10 VGA Connector

NOVA-7897 built-in 15-pin VGA connector directly to your CRT monitor.

CN5 : 15-pin Female Connector

1	RED	2	GREEN
3	BLUE	4	NC
5	GROUND	6	GROUND
7	GROUND	8	GROUND
9	NC	10	GROUND
11	NC	12	DDC DAT
13	HSYNC	14	VSYNC
15	DDCCLK		

3.11 Audio Connectors

The AC'97 compliant CODEC support several audio functions. The connector is described as below.

NOVA-7897 Socket 370 base embedded board
With Gigabit , 10/100Mbps Ethernet , VGA , Audio

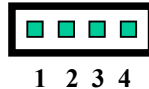
22

CN9 : AUDIO CONNECTOR

1.	LEFT SPEAKER OUT SIGNAL (WITH AMPLIFIER)
2.	RIGHT SPEAKER OUT SIGNAL (WITH AMPLIFIER)
3.	GROUND(FOR SPK CONNECTOR)
4.	GROUND
5.	NC
6.	NC
7.	LEFT LINE IN SIGNAL
8.	RIGHT LINE IN SIGNAL
9.	GROUND(FOR LINE IN CONNECTOR)
10.	GROUND(NO USE)
11.	MIC IN
12.	GROUND(FOR MIC IN CONNECTOR)

CD1 : CD-IN

1.	CD LEFT SIGNAL
2.	GROUND
3.	GROUND
4.	CD RIGHT SIGNAL



3.12 External Switches and Indicators

There are several external switches and indicators for monitoring and controlling your CPU board. All the functions are in the CN1 connector.

CN1 : 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 -

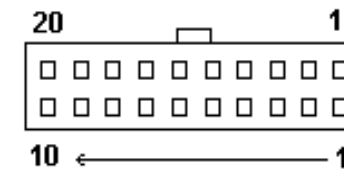
ATX Power On/Off Button (S1) & Connector(CN24)

PIN NO.	DESCRIPTION
1	PWR_BUTTON+
2	Ground

3.13 ATX Power Connector

The NOVA-7897 have one ATX power connector for power supply.

ATX1 : ATX Power Supply Connector



ATX1 is a 20-pin ATX Power Supply Connector. Please refer to the following table for the pin assignments.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
11	3.3V	1	3.3V
12	-12V	2	3.3V
13	GND	3	GND
14	PSON#	4	+5V
15	GND	5	GND
16	GND	6	+5V
17	GND	7	GND
18	-5V	8	Power good
19	+5V	9	+5VSB
20	+5V	10	+12V

3.14 PCI Slots

The NOVA-7897 have two specific PCI slots for PCI module and one standard PCI slot for common PCI card.

PCI1, PCI2 : Specific PCI Slots

PCI3: Standard PCI Slot

PCI1 and PCI2 are special defined PCI slots. The pin assignment is listed as following. **Do not insert incompatible PCI module into these slots, or the module could be damaged inadvertently.**

PCI1/PCI2

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	TRDP3_1 / NC	2	TRDM0
3	TRDM3_1 / NC	4	TRDP0
5	NC	6	NC
7	TRDP2_1 / NC	8	TRDM1
9	TRDM2_1 / NC	10	TRDP1
11	NC	12	NC
13	TRDP1_1	14	TRDM2 / NC
15	TRDM1_1	16	TRDP2 / NC
17	TANS_HIGH_1	18	TANS_HIGH
19	TRDP0_1	20	TRDM3
21	TRDM0_1	22	TRDP3
23	GROUND	24	GROUND
25	LANACT#_1	26	LINK#
27	LINK#_1	28	LANACT#
29	5VCCL_2	30	GROUND
31	L_HSYNC_2	32	L_BLUE_2
33	L_VSYNC_2	34	L_GREEN_2
35	5VCDA_2	36	L_RED_2

NOVA-7897 Socket 370 base embedded board
With Gigabit , 10/100Mbps Ethernet , VGA , Audio

25

37	PIRQ#C/PIRQ#A	38	GROUND
39	GROUND	40	PIRQ#D/PIRQ#B
41	PIRQ#A/PIRQ#C	42	PIRQ#B/PIRQ#D
43	PCI_RST#	44	GROUND
45	VCC5DUAL	46	REQ64#1
47	PCI_PME#	48	+5V
49	AD31	50	GROUND
51	AD30	52	PCLK_2 / PCLK4
53	AD29	54	NC
55	AD28	56	PCLK_3 / PCLK5
57	AD26	58	V3SB
59	AD27	60	V3SB
61	NC	62	V3SB
63	+3.3V	64	PREQ#2 / PREQ#4
65	AD24	66	C_BE#3
67	AD25	68	+3.3V
69	GROUND	70	SMBCLK
71	AD23	72	SMBDATA
73	AD21	74	PGNT#1 / PGNT#3
75	+3.3V	76	PREQ#1 / PREQ#3
77	AD19	78	GROUND
79	GROUND	80	AD18 / AD20
81	AD16	82	+3.3V
83	GROUND	84	AD22
85	+3.3V	86	GROUND
87	AD17	88	AD20
89	FRAME#	90	AD18
91	IRDY#	92	+3.3V
93	GROUND	94	AD17 / AD19
95	TRDY#	96	C_BE#2
97	DEVSEL#	98	GROUND
99	+3.3V	100	PGNT#2 / PGNT#4
101	STOP#	102	+3.3V
103	GROUND	104	VGA_EN#
105	PLOCK#	106	GROUND
107	PERR#	108	SMLINK0
109	SMLINK1	110	C_BE#0
111	GROUND	112	AD8

NOVA-7897 Socket 370 base embedded board
With Gigabit , 10/100Mbps Ethernet , VGA , Audio

26

113	SERR#	114	GROUND
115	C_BE#1	116	AD7
117	+5V	118	AD6
119	PAR	120	AD5
121	AD15	122	+5V
123	GROUND	124	AD4
125	AD14	126	GROUND
127	AD13	128	AD3
129	AD11	130	AD2
131	+5V	132	GROUND
133	AD12	134	AD0
135	+5V	136	GROUND
137	AD10	138	ACK64#
139	AD9	140	+5V
141	+12V	142	AD1
143	GROUND	144	GROUND

4

Award BIOS Setup

4.1 Introduction

This chapter discusses the Setup program built into the BIOS. The Setup program allows users to configure the system. This configuration is then stored in battery-backed CMOS RAM so that it retains the Setup information while the power is off.

4.2 Starting Setup

The BIOS is immediately active when you turn on the computer. While the BIOS is in control, the Setup program can be activated 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 enter SETUP.

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to...

PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

4.3 Using Setup

In general, you can use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more details about how to navigate in the Setup program using the keyboard.

Key	Function
Up Arrow	Move to the previous item
Down	Move to the next item
Left Arrow	Move to the item on the left (menu bar)
Right Arrow	Move to the item on the right (menu bar)
Esc	Main Menu: Quit without saving changes Submenus: Exit Current page to the next higher level menu
Move Enter	Move to the item you desired
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
F1 key	General help on Setup navigation keys
F5 key	Load previous values from CMOS
F6 key	Load the fail-safe defaults from BIOS default table
F7 key	Load the optimized defaults
F10 key	Save all the CMOS changes and exit

4.4 Main Menu

Once you enter the AwardBIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software

Standard CMOS Features	Frequency/Voltage Control
Advanced BIOS Features	Load Fail-Safe Defaults
Advanced Chipset Features	Load Optimized Defaults
Integrated Peripherals	Set Supervisor Password
Power Management Setup	Set User Password
PnP/PCI Configurations	Save & Exit Setup
PC Health Status	Exit Without Saving
Esc : Quit ↑↓←→ : Select Item	
F10 : Save & Exit Setup	
Time, Date, Hard Disk Type....	

Note that a brief description of each highlighted selection appears at the bottom of the screen.

4.4.1 Setup Items

The main menu includes the following main setup categories. Recall that some systems may not include all entries.

Standard CMOS Features

Use this menu for basic system configuration. See Section 4.5 for the details.

Advanced BIOS Features

Use this menu to set the Advanced Features available on your system. See Section 4.6 for the details.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance. See section 4.7 for the details.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals. See section 4.8 for the details.

Power Management Setup

Use this menu to specify your settings for power management. See section 4.9 for the details.

PnP / PCI Configuration

This entry appears if your system supports PnP / PCI. See section 4.10 for the details.

PC Health Status

Use this menu to Display CPU/System Temperature, FAN speed

Frequency/Voltage Control

Use this menu to specify your settings for frequency/voltage control. See section 4.11 for the details.

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate. See section 4.12 for the details.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs. See section 4.12 for the details.

Supervisor / User Password

Use this menu to set User and Supervisor Passwords. See section 4.13 for the details.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup. See section 4.14 for the details.

Exit Without Save

Abandon all CMOS value changes and exit setup. See section 4.14 for the details.

4.5 Standard CMOS Setup

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
Standard CMOS Features

Date: Mon, Feb 8 2000	Item Help
Time: 16:19:20	
➤ IDE Primary Master HD Model Name	Menu Level ➤
➤ IDE Primary Slave <Press Enter> None	Change the day, month, year and century
➤ IDE Secondary Master <Press Enter> None	
➤ IDE Secondary Slave <Press Enter> None	
Drive A 1.44M, 3.5 in.	
Drive B None	
Video EGA/VGA	
Halt On All,But Keyboard	
Based Memory 640K	
Extended Memory 129024K	
Total Memory 130048K	
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults	

Figure 1: The Main Menu

Main Menu Selections

Item	Options	Description
Date	MM DD YYYY	Set the system date.
Time	HH : MM : SS	Set the system time
IDE Primary Master	Options are in its sub menu (described in Table 3)	Press <Enter> to enter the sub menu of detailed options
IDE Primary Slave	Options are in its sub menu (described in Table 3)	Press <Enter> to enter the sub menu of detailed options
IDE Secondary	Options are in its sub menu (described in Table 3)	Press <Enter> to enter the sub menu of detailed options
IDE Secondary Slave	Options are in its sub menu (described in Table 3)	Press <Enter> to enter the sub menu of detailed options
Drive A Drive B	None 360K, 5.25 in 1.2M, 5.25 in 720K, 3.5 in 1.44M, 3.5 in 2.88M, 3.5 in	Select the type of floppy disk drive installed in your system
Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device
Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/Key	Select the situation in which you want the BIOS to stop the POST process and notify you
Base Memory	N/A	Displays the amount of conventional memory detected during boot up
Extended Memory	N/A	Displays the amount of extended memory detected during boot up

Total Memory	N/A	Displays the total memory available in the system
--------------	-----	---

Table 2 Main Menu Selections

IDE Adapters

The IDE adapters control the hard disk drive. Use a separate sub menu to configure each hard disk drive. Figure 2 shows the IDE primary master sub menu.

CMOS Setup Utility – Copyright © 1984-2000 Award Software
IDE Primary Master

IDE HDD Auto-Detection	Press Enter	Item Help
IDE Primary Master	Auto	Menu Level >>
Access Mode	Auto	To auto-detect the HDD's size, head... on this channel
Capacity	15362 MB	
Cylinder	29765	
Head	16	
Precomp	0	
Landing Zone	29764	
Sector	63	
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

Figure 2 IDE Primary Master sub menu

Use the legend keys to navigate through this menu and exit to the main menu. Use Table 3 to configure the hard disk.

Item	Options	Description
IDE HDD Auto-detection	Press Enter	Press Enter to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu.
IDE Primary Master	None Auto Manual	Selecting 'manual' lets you set the remaining fields on this screen. Selects the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc. Note: PRECOMP=65535 means NONE!
Capacity	Auto Display your disk drive size	Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk checking program.
Access Mode	CHS LBA Large Auto	Choose the access mode for this hard disk

Table 3 Hard disk selections

4.6 Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

CMOS Setup Utility – Copyright © 1984 – 2000 Award Software
Advanced BIOS Features

Item	Value	Item Help
Virus Warning	Disabled	
CPU Internal Cache	Enabled	
External Cache	Enabled	
CPU L2 Cache ECC Checking	Enabled	
Process Number feature	Enabled	
Quick Power On Self Test	Disabled	
First Boot device	Floppy	
Second Boot device	HDD-0	
Third Boot device	LS120	
Boot other device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Enabled	
Boot Up NumLock Status	On	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
Typematic Rate (Chars/Sec)	6	
Typematic Delay (Msec)	250	
Security Option	Setup	
OS Select For DRAM > 64MB	Non-OS2	
Report NO FDD For Win 95	No	
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

Virus Warning

Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

Enabled	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Disabled	No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

CPU Internal Cache/External Cache

These two categories speed up memory access. However, it depends on CPU/chipset design.

Enabled	Enable cache
Disabled	Disable cache

CPU L2 Cache ECC Checking

This item allows you to enable/disable CPU L2 Cache ECC checking. The choice: Enabled, Disabled.

Processor Number Feature

This item allows you to enable/disable support KLAMATH. The choice: Enabled, Disabled.

Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power up the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

Enabled	Enable quick POST
Disabled	Normal POST

First/Second/Third/Other Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items.
The Choice: Floppy, LS120, HDD0-3, SCSI, CDROM, ZIP 100 , LAN, Disabled.

Swap Floppy Drive

If the system has two floppy drives, you can swap the logical drive name assignments. The choice: Enabled/Disabled.

Boot Up Floppy Seek

Seeks disk drives during boot up. Disabling speeds boot up.
The choice: Enabled/Disabled.

Boot Up NumLock Status

Select power on state for NumLock.
The choice: On/Off.

Gate A20 Option

Select if chipset or keyboard controller should control GateA20.

Normal	A pin in the keyboard controller controls GateA20
Fast	Lets chipset control GateA20

Typematic Rate Setting

Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.
The choice: Enabled/Disabled.

Typematic Rate (Chars/Sec)

Sets the number of times a second to repeat a key stroke when you hold the key down.
The choice: 6, 8, 10, 12, 15, 20, 24, 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke.
The choice: 250, 500, 750, 1000.

Security Option

Select whether the password is required every time the system boots or only when you enter setup.

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

Note: To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

OS Select For DRAM > 64MB

Select the operating system that is running with greater than 64MB of RAM on the system.
The choice: Non-OS2, OS2.

Report No FDD For Win 95

Whether report no FDD for Win 95 or not.
The choice: Yes, No.

4.7 Advanced Chipset Features

CMOS Setup Utility – Copyright © 1984 – 2000 Award Software
Advanced Chipset Features

SDRAM CAS Latency Time	3	Item Help
SDRAM Cycle Time Tras/Trc	7/9	
SDRAM RAS-to-CAS Delay	3	Menu Level >
SDRAM RAS Precharge Time	3	
System BIOS Cacheable	Disabled	
Video BIOS Cacheable	Disabled	
CPU Latency Timer	Disabled	
Delay Transaction	Enabled	
AGP Graphics Aperture Size	64MB	
System Memory Frequency	Auto	
On-Chip VGA	Enable	
Flash BIOS	Disable	
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should

NOVA-7897 Socket 370 base embedded board 41
With Gigabit , 10/100Mbps Ethernet , VGA , Audio

never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system.

DRAM Settings

The first chipset settings deal with CPU access to dynamic random access memory (DRAM). The default timings have been carefully chosen and should only be altered if data is being lost. Such a scenario might well occur if your system had mixed speed DRAM chips installed so that greater delays may be required to preserve the integrity of the data held in the slower memory chips.

SDRAM CAS Latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.
The Choice: 2, 3

SDRAM Cycle Time Tras/Trc

Select the number of SCLKs for an access cycle.
The Choice: 5/7, 6/8.

SDRAM RAS-to-CAS Delay

This field lets you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system.
The Choice: 2, 3.

SDRAM RAS Precharge Time

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

The Choice: 2, 3.

System BIOS Cacheable

NOVA-7897 Socket 370 base embedded board 42
With Gigabit , 10/100Mbps Ethernet , VGA , Audio

Selecting *Enabled* allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

The choice: Enabled, Disabled.

Video BIOS Cacheable

Select Enabled allows caching of the video BIOS , resulting in better system performance. However, if any program writes to this memory area, a system error may result.

The Choice: Enabled, Disabled.

CPU Latency Timer

Enabled :CPU cycle will only be Deferred after in has been in a “Snoop Stall” for 31 clocks and another ADS# has arrived.

Disabled: CPU cycle will only be Deferred immediately after the GMCH receives another ADS#.

The Choice: Enabled, Disabled.

Delay Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select *Enabled* to support compliance with PCI specification version 2.1.

The Choice: Enabled, Disabled.

On-Chip VGA

Select the on-chip Enabled or Disabled.

Flash BIOS

The NOVA-7897 has an BIOS write-protect select ion.

Enabled : You can use flash utility update BIOS.

Disabled: BIOS can' t update by software.

4.8 Integrated Peripherals

CMOS Setup Utility – Copyright © 1984 – 2000 Award Software
Integrated Peripherals

On-Chip Primary PCI IDE	Enabled	Item Help <hr/> Menu Level ➤ If your IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/write per sector the drive can support
On-Chip Secondary PCI IDE	Enabled	
IDE Primary Master PIO	Auto	
IDE Primary Slave PIO	Auto	
IDE Secondary Master PIO	Auto	
IDE Secondary Slave PIO	Auto	
IDE Primary Master UDMA	Auto	
IDE Primary Slave UDMA	Auto	
IDE Secondary Master UDMA	Auto	
IDE Secondary Slave UDMA	Auto	
USB Controller	Disabled	
USB Keyboard Support	Disabled	
AC97 Audio	Auto	
IDE HDD Block Mode	Enabled	
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	
UART Mode Select	Normal	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	SPP	
Watch Timer Unit Select	Second	
↑↓←→ Move Enter: Select +/-PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

There are some item in bottom of scroll.

On-Chip Primary/Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately.

The choice: Enabled, Disabled.

IDE Primary/Secondary Master/Slave PIO

The four 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. In Auto mode, the system automatically determines the best mode for each device.

The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Primary/Secondary Master/Slave UDMA

Ultra DMA-33/66 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-33/66, select Auto to enable BIOS support.

The Choice: Auto, Disabled.

USB Controller

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

The Choice: Enabled, Disabled.

USB Keyboard Support

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

The Choice: Enabled, Disabled.

AC97 Audio

This item allows you to decide to enable/disable the 810E chipset family to support AC97 Audio.

The choice: Auto, Disabled.

IDE HDD Block Mode

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.

The choice: Enabled, Disabled

Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled in this field.

The choice: Enabled, Disabled

Onboard Serial Port 1/Port 2

Select an address and corresponding interrupt for the first and second serial ports.

The choice: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto

UART Mode Select

Select a serial port 2 operation mode.

The choice: Normal, IrDA, ASKIR, SCR

Onboard Parallel Port

Select an address and corresponding interrupt for the parallel ports.

The choice: 378/IRQ7, 278/IRQ5, 3BC/IRQ7, Disabled,

Parallel Port Mode

Select a parallel operation mode.

The choice: SPP, EPP, ECP, ECP+EPP

Watchdog Timer Unit Select

Select the WatchDog Timer unit.

The choice: Second, Minute

4.9 Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy while operating in a manner consistent with your own style of computer use.

CMOS Setup Utility – Copyright © 1984 – 2000 Award Software
Power Management Setup

Power Management	User Define	Item Help
Video Off Method	DPMS	
Video Off In Suspend	Yes	Menu Level >
Suspend Type	Stop Grant	
Suspend Mode	Disabled	
HDD Power Down	Disabled	
Soft-off by PWR-BTTN	Instant-off	
Wake-up by PCI card	Disabled	
Power On by Ring	Enabled	
CPU Thermal-Throttling	50.0%	
Resume by Alarm	Disabled	
** Reload Global Timer Events **		
Primary IDE 0	Disabled	
Primary IDE 1	Disabled	
Secondary IDE 0	Disabled	
Secondary IDE 1	Disabled	
FDD,COM,LPT Port	Disabled	
PCI, PIRQ[A-D]#	Disabled	
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. HDD Power Down
2. Doze Mode
3. Suspend Mode

There are four selections for Power Management, three of which have fixed mode settings.

Disable (default)	No power management. Disables all four modes
Min. Power Saving	Minimum power management. Doze Mode = 1 hr. Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management -- ONLY AVAILABLE FOR SL CPU's . Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Defined	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Initial display power management signaling.

Video Off In Suspend

This determines the manner in which the monitor is blanked.
The choice: Yes, No.

SuspendType

Select the Suspend Type.
The choice: PWRON Suspend, Stop Grant.

Suspend Mode

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

The choice: 1Min, 2Min, 4Min, 8Min, 12Min, 20Min, 30Min, 40Min, 1Hour, Disabled.

HDD Power Down

When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.
The choice: 1Min, 2Min, 3Min, 4Min, 5Min, 6Min, 7Min, 8Min, 9Min, 10Min, 11Min, 12Min, 13Min, 14Min, 15Min, Disabled.

Wake-up by PCI card

Enable support wake on LAN (WOL) function.

PM EVENTS

PM events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device which is configured as *Enabled* , even when the system is in a power down mode.

Primary IDE 0
Primary IDE 1
Secondary IDE 0
Secondary IDE 1
FDD, COM, LPT Port
PCI PIRQ[A-D] #

4.10 PnP/PCI Configuration Setup

This section describes configuring the PCI bus system. PCI, or **Personal Computer Interconnect**, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

CMOS Setup Utility – Copyright © 1984-2000 Award Software
PnP/PCI Configurations

Reset Configuration Data Disabled	Item Help
Resources Controlled By Auto(ESCD)	----- Menu Level ➤
x IRQ Resources Press Enter	Default is Disabled. Select Enabled to reset Extended System Configuration Data(ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
PCI/VGA Palette Snoop Disabled	
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults	

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot. The choice: Enabled, Disabled .

Resource controlled by

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95. If you set this field to “manual” choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a “➤”). The choice: Auto(ESCD), Manual.

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

IRQ3/4/5/7/9/10/11/12/14/15 assigned to

This item allows you to determine the IRQ assigned to the ISA bus and is not available to any PCI slot. Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture. The Choice: PCI Device, Reserved.

PCI/VGA Palette Snoop

Leave this field at *Disabled*. Choices are Enabled, Disabled.

4.11 Frequency/Voltage Control

CMOS Setup Utility – Copyright © 1984-2000 Award Software
Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	Disabled	Item Help
Spread Spectrum	Disabled	-----
CPU Host/PCI Clock	Default	Menu Level >
CPU Clock Ratio	X 4	
↑↓←→ Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

Auto Detect DIMM/PCI Clk

This item allows you to enable/disable auto detect DIMM/PCI Clock.
The choice: Enabled, Disabled.

Spread Spectrum

This item allows you to enable/disable the spread spectrum modulate.
The choice: Enabled, Disabled.

CPU Host / PCI Clock

This item allows you to select CPU Host and PCI clock.
The choice: Default,130/33,133/33,137/34,140/35,145/36,150/38(M)

CPU Clock Ratio

This item allows you to select CPU clock ratio.
The choice: 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8,8.5,9,9.5,10,10.5,11,11.5,12.

4.12 Defaults Menu

Selecting “Defaults” from the main menu shows you two options which are described below

Load Fail-Safe Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N) ? **N**

Pressing ‘Y’ loads the BIOS default values for the most stable, minimal-performance system operations.

Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N) ? **N**

Pressing ‘Y’ loads the default values that are factory settings for optimal performance system operations.

Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

4.13 Supervisor/User Password Setting

You can set either supervisor or user password, or both of them. The differences between are:

supervisor password :

can enter and change the options of the setup menus.

user password :

just can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to password will be required both at boot and at entry to

4.14 Exit Selecting

Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

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) or a Non-Maskable Interrupt (NMI) 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 or minute, 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. 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
200-207	Game I/O
278-27F	Parallel Printer Port 2 (LPT3)
2E8-2EF	Serial Port 4
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
3E8-3EF	Serial Port 3
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-FFFFFF	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 82559 LAN
IRQ3	COM2	IRQ11	Intel 82562ET LAN
IRQ4	COM1	IRQ12	PS/2 mouse
IRQ5	AC'97 CODEC	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 C.

How to Upgrade a New BIOS

You can install an upgrade BIOS for the NOVA-7897 that you can download from the manufacturer's web site (www.e-icp.com.tw). New BIOS may provide support for new peripherals ,improvements in performance or fixes to addressed known bugs.

BIOS Update Procedure:

PS :(Into the Advanced Chipset Features item then change the values of flash BIOS to Enabled.)

1. Make a boot disk. Go to the DOS command prompt in MS-DOS or Windows 9x and, with an available floppy disk in "A", type "format A: /s" That will format the floppy and transfer the needed system files to it.

NOTES:

A. This procedure will erase any prior data on that floppy, so please Proceed accordingly.

B. Typically four files will be transferred, only COMMAND.COM being visible when running a simple directory listing.

C. Please leave the diskette UN-write protected for the balance of this procedure.

2. Download the BIOS upgrade file and awdfash.exe utility from a ICP web site to a temp directory on your hard drive, or directly to the floppy you made in step 1..

3. Copy (BIOS file and awdfash.exe)two files to the boot floppy.

4. Reboot the system to the DOS command prompt using the boot diskette you just made.

5. At the DOS command prompt type , "awdfash filename.xxx", where filename.xxx is the file name of the BIOS file . Hit enter.

6. Your first option, in sequence, will be to save the old BIOS. We recommend that you do that in case, for whatever reason, you decide you don't wish to use the new version once it is installed.

NOTES:

A. If you decide to save the old BIOS, PLEASE make sure you do NOT save it to the same file name as the new BIOS - if you use the same BIOS name the old file will be written over the new file with NO warning prompt. A simple file name to save the old BIOS to is OLDBIOS.BIN.

B. If you do NOT decide to save the old BIOS, PLEASE at least write down the version number of the old BIOS and store that information with your important computer documents. Enter N (for "no") and skip to step 9.

7. To save the old BIOS, hit Y (for "yes")

8. Enter a name for the OLD BIOS file and hit enter.

NOTE:PLEASE be sure you do NOT save the old BIOS file to the same file name as the new BIOS - if you use the same BIOS name, the old file will write over the new BIOS file WITHOUT a warning prompt. A simple file name for saving the old BIOS to is OLDBIOS.BIN.

9. Your second option, in sequence, will be whether you want to flash your BIOS. Enter Y (for "yes").

NOTE: This is the critical step. Once you hit the enter key, do NOT touch the keyboard, the reset button, or power switch while the flashing is in progress. There will be a bar progressing across the screen while the flashing is progressing.

10. When the flashing process is complete, you will be asked to reset or power off the system. Remove the floppy diskette from the floppy drive and either hit the reset button or the power button.

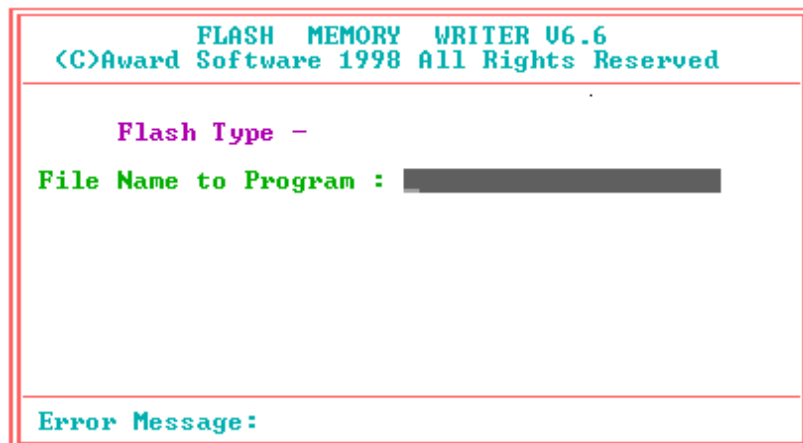
11. Reboot the system and note that the BIOS version on the initial boot-up screen has changed to the new BIOS version. Your BIOS upgrade is now complete.

Recovering Your Old BIOS:

1. Assuming you have the floppy made during the upgrade procedure noted above, boot the system with that diskette in the floppy drive. If you do not have floppy made during the upgrade procedure noted above, you will need to repeat steps 1 through 3 (above) for the version of the BIOS you wish to recover to.

2. Complete steps 4, 5, 6B, 9, 10, and 11 (above) substituting the name of the BIOS you wish to recover for the upgrade BIOS at step 5.

Install screen :



i3