

JUKI- 740E

User Manual

Version 4.0

**Pentium® with LCD/CRT & Ethernet
PCISA Bus Single Board Computer**

February 10, 2004



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Chapter 1. Introduction

Thank you for choosing JUKI-740E Pentium® with HiQPro™ LCD/CRT and Ethernet Single Board Computer. The JUKI-740E board is an PCISA form factor board, which comes equipped with high performance Pentium® CPU and advanced high performance multi-mode I/O, designed for the system manufacturers, integrators, or VARs that want to provide all the performance, reliability, and quality at a reasonable price.

This board has in it a built-in DiskOnChip™ (DOC) Flash Disk for embedded application. DOC Flash Disk is 100% compatible to hard disks. This fact allow user to use any kind of DOS commands without having to install any extra software utility. DOC currently is available from 2MB to 72MB.

The on board RTL8139 network chipset provides 10Mbps or 100Mbps Ethernet with auto-sensing function..

In addition, the JUKI-740E has a built-in C&T 69000 LCD/CRT Chipset. LCD interface can support up to 1280x1024 with 256 colors in resolution. It also support various type of flat panels such as Mono, Color STN, TFT, EL and so on. The board also supports either 3.3V or 5V version.

1.1 Specifications

The JUKI-740E Pentium® with HiQPro™ LCD/CRT & Ethernet Single Board Computer provides the following specification:

- **CPU** : Pentium® MMX up to 233Mhz, AMD K6 processor up to 300MHz, Cyrix 6x86MX and IDE C6 processor
 - **PCISA Bus** : ISA bus and PCI 32-bit local bus, PCI 2.1 standard
 - **Chipset** : ALI M1531/M1543
 - **LCD/CRT Interface** : : C&T 69000 Chipset
 - ✓ CRT Resolution : 1280x1024,256 colors
1024x768, 64K colors
800x600, 16M colors
 - ✓ 36-bit LCD Interface Resolution : 1280x1024,256 colors
1024x768, 64K colors
800x600, 16M colors
- For more information please refer to website: www.chips.com
- **Ethernet** : RTL 8100B Chipset
 - ✓ IEEE 802.3u 100BASE-TX standard
 - ✓ Auto-sensing interface to 10Mbps or 100Mbps networks
 - ✓ Full duplex capability
- For more information please refer to website: www.realtek.com.tw
- **Real-time clock/calendar** : In ALI 4+ chipset, backup by industrial Li-battery,3V/850mAH.
 - **RAM memory** : Support up to 128MB EDO RAM
 - **Second Cache memory** : 512KB Pipelined Burst SRAM on board
 - **Ultra DMA/33 IDE Interface** : Support up to four PCI Enhance IDE hard drives. The Ultra DMA/33 IDE can handle data transfer up to 33MB/s. Best of all is that this new technology is compatible with existing ATA-2 IDE specifications so there is no need to change any of users' current accessories.
 - **Floppy disk drive interface** : Provides two 2.88 MB, 1.44MB, 1.2MB, 720KB, or 360KB floppy disk drives.
 - **Two high speed Series ports** : NS16C550 compatible UARTs
 - **Bi-directional Parallel Port**
 - **Watch-dog timer** : Can be set to 1,2,10,20,110 or 220 seconds per interval. A system reset or NMI was generated when CPU did not periodically trigger the timer. The system program use hex 043 and 443 to control the watch-dog and generate a system reset.
 - **Flash Disk - DiskOnChip™** : The Flash Disk provide 100% compatible with hard disk. The built-in TrueFFS Transparent Flash Block Management and Space Reclamation will allow users to use Flash Disk with DOS command, therefore, no need to install any extra software utility.
 - **Keyboard connector**
 - **Mouse** : PS/2 Mouse Port on-board.
 - **Power Consumption** :
 - ✓ +5V @ 5A
 - ✓ (MMX-233,32MB EDO RAM)
 - ✓ +12V @ 170mA , -12V@20mA
 - **Operating Temperature** : 0° ~ 55° C (CPU needs Cooler)

1.2 Package Contents

In addition to this *User's Manual*, the JUKI-740E package includes the following items:

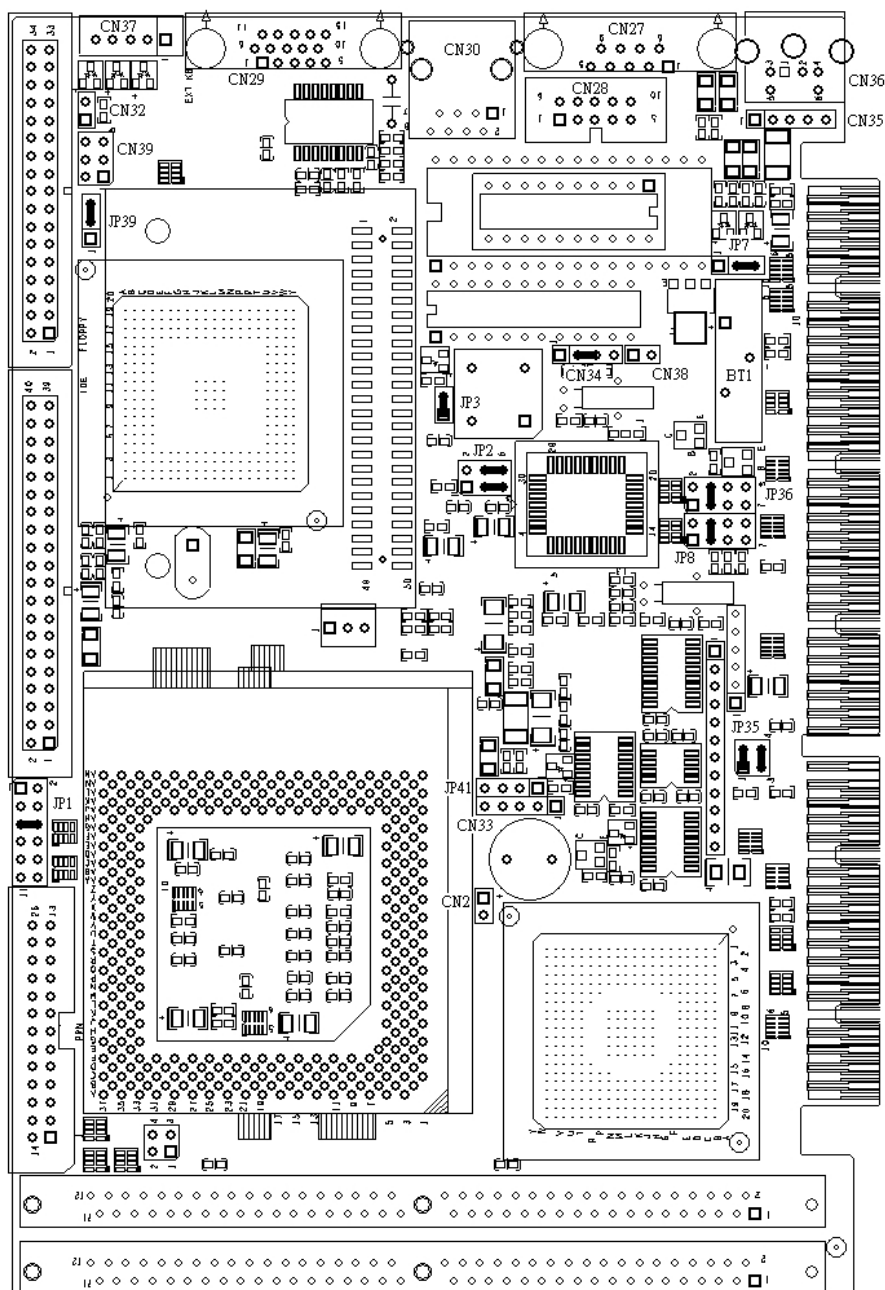
- JUKI-740E Pentium® with HiQPro™ LCD/CRT & Ethernet Single Board Computer
- RS-232/Printer Cable
- FDD/HDD Cable
- 6-pin Mini-Din to 5-pin Din Keyboard and Mouse Adapter Cable

If any of these items is missing or damaged, contact the dealer from whom you purchased the product. Save the shipping materials and carton in case you want to ship or store the product in the future.

Chapter 2. Installation

This chapter describes how to install the JUKI-740E. First, the layout of JUKI-740E is shown, and then the unpacking information that you should pay attention to is described. Other information such as jumper and switch settings for the JUKI-740E's configuration, such as CPU type selection, system clock setting, and watch dog timer, are also included.

2.1 JUKI-740E Layout



2.2 CPU Settings of JUKI-740E

- **CPU Clock Setting :**

CPU Speed/Clock	JP1 1-2	JP1 9-10	JP1 11-12
55MHz	SHORT	SHORT	OPEN
60MHz	SHORT	OPEN	OPEN
66MHz	OPEN	OPEN	OPEN

- **CPU to Bus Multiple :**

Multiplier	JP1 3-4	JP1 5-6	JP1 7-8
1.5 x	OPEN	OPEN	OPEN
2x	SHORT	OPEN	OPEN
2.5x	SHORT	SHORT	OPEN
3 x	OPEN	SHORT	OPEN
3.5 x	OPEN	OPEN	OPEN
4 x	SHORT	OPEN	SHORT
4.5x	SHORT	SHORT	SHORT
5x	OPEN	SHORT	SHORT
5.5x	OPEN	OPEN	SHORT

**CPU Frequency = CPU Clock x Multiplier for example
Pentium® 200MHz = 66MHz CPU Clock x 3**

- **CPU Core Voltage Selection :**

Please check CPU Core Voltage before you install the CPU. Currently, the new Intel MMX CPU utilizes dual voltages for core and I/O, that is, I/O is 3.3V but core is 2.8V. This kind of CPU design will enhance low power consumption capability. As for general Pentium CPUs, it utilizes only one voltage for both I/O and Core - 3.3V, 3.4V, or 3.5V.

- **JP1 CPU Core Voltage Setting :**
(JP1 is in the power module)

CPU Core Voltage	JP1 1-2	JP1 3-4	JP1 5-6	JP1 7-8
3.5V(P54C/CS) VRE	SHORT	SHORT	SHORT	SHORT
3.4V(P54C/CS) STD	OPEN	SHORT	SHORT	SHORT
3.3V	SHORT	OPEN	SHORT	SHORT
3.2V	OPEN	OPEN	SHORT	SHORT
3.1V	SHORT	SHORT	OPEN	SHORT
3.0V	OPEN	SHORT	OPEN	SHORT
2.9V	SHORT	OPEN	OPEN	SHORT
2.8V	OPEN	OPEN	OPEN	SHORT
2.7V	SHORT	SHORT	SHORT	OPEN
2.6V	OPEN	SHORT	SHORT	OPEN
2.5V	SHORT	OPEN	SHORT	OPEN
2.4V	OPEN	OPEN	SHORT	OPEN
2.3V	SHORT	SHORT	OPEN	OPEN
2.2V	OPEN	SHORT	OPEN	OPEN
2.1V	SHORT	OPEN	OPEN	OPEN
2.0V	OPEN	OPEN	OPEN	OPEN

- **Dual / Single CPU Voltage setting :**

Vcore & VIO	JP34 1-2	JP34 3-4	JP35 1-2	JP35 3-4
Pentium® (P54C) IDT C6	SHORT	SHORT	OPEN	OPEN
Pentium® MMX AMD K6 Cyrix 6x86MX Dual Voltage	OPEN	OPEN	SHORT	SHORT

- **Cyrix 6x86MX PR Rating Table**
(Vcore : 2.9V,dual voltage)

PR Rating	Bus MHz	CPU Core MHz	Clock Multiplier
6x86MX-PR133	50	100	2x
6x86MX-PR133*	55	110	2x
6x86MX-PR150	60	120	2x
6x86MX-PR150	50	125	2.5x
6x86MX-PR166	66	133	2x
6x86MX-PR166	55	138	2.5x
6x86MX-PR166	50	150	3x
6x86MX-PR166	60	150	2.5x
6x86MX-PR200	55	165	3x
6x86MX-PR200	66	166	2.5x
6x86MX-PR200	60	180	3x
6x86MX-PR233	66	200	3x
6x86MX-PR266	66	233	3.5x

- **AMD K6 MMX Rating Table, dual voltage**

Product Name	Core Freq	Vcore	Bus MHz	Multiplier
K6-233 model 6	233MHz	3.2V	66	3.5x
K6-200 model 6	200MHz	2.9V	66	3x
K6-166 model 6	166MHz	2.9V	66	2.5x
K6-300 model 7	300MHz	2.2V	66	4.5x
K6-266 model 7	266MHz	2.2V	66	4x
K6-233 model 7	233MHz	2.2V	66	3.5x

2.3 Watch-Dog Timer

The Watch-Dog Timer is enabled by reading port 443H. It should be triggered before the time-out period ends, otherwise it will assume system operation is abnormal and will issue a reset signal to start again, or activate NMI to CPU. The Watch-Dog Timer is disable by reading port 843H.

- **JP7 : Watch-Dog Active Type Setting**

JP7	DESCRIPTION
2-3	RESET WHEN WDT TIME-OUT
1-2	ACTIVATE NMI TO CPU WHEN WDT TIME-OUT
OPEN	DISABLE WDT

- **JP8: WDT Time-Out Period**

PERIOD	1-2	3-4	5-6	7-8
1 sec.	OPEN	OPEN	SHORT	OPEN
2 sec.	OPEN	OPEN	SHORT	SHORT
10 sec.	OPEN	SHORT	OPEN	OPEN
20 sec.	OPEN	SHORT	OPEN	SHORT
110 sec.	SHORT	OPEN	OPEN	OPEN
220 sec.	SHORT	OPEN	OPEN	SHORT

2.4 DiskOnChip™ Flash Disk

The DiskOnChip™ Flash Disk Chip(DOC) is produced by M-Systems. Since DOC is 100% compatible to hard disk and DOS, users don't need to install any extra software utility. Its "plug and play" function is easy and reliable. Please note that it will share 8KB of window's memory.

- **JP36 : DiskOnChip Memory Address Setting**

ADDRESS	JP36
CE000	1-2
D6000	3-4
DE000	5-6

2.5 LCD Voltage Setting

The JUKI-740E supports 3.3V or 5V LCD panel via different jumper settings and these settings will modify CN3's Pin 29 & 30 to 3.3V or 5V output.

- **JP39 : LCD Voltage Setting**

FUNCTION	JP39
3.3V	1-2
5V	2-3

2.6 Clear CMOS Setup

If users want to clear the CMOS Setup(for example when you have forgotten the password, then what you should do is to clear setup and reset the password), you should short CN34 pin 2-3 for about 3 seconds, then open it again. To set back to normal operation mode, please SHORT pin 1-2.

- **CN34 : Clear CMOS Setup (Reserve Function)**

CN34	DESCRIPTION
2-3	Normal Operation
3-4	Clear CMOS Setup

2.7 Battery Backup for CMOS Setup

There is one 4-pin header CN34 available to support battery backup function. When users short pin 2-3, single board computer will use on board battery. When you need to use external battery source, you should take off the jumper and use the connector to connect to the external battery source.

- **CN34: Battery Backup Function**

CN34	DESCRIPTION
2-3 SHORT	Using Internal Battery
Connect Battery to Pin 1-4	Use as External Battery Connector

2.8 BIOS Flash Chip Write Voltage Setting

There are two types of BIOS Flash Chip, one uses 12V as its write voltage and the other uses 5V. Please note that this particular jumper setting is manufactory default value.

FLASH TYPE	JP2
+12V / 1MB	1-3 , 2-4
+12V / 2MB	1-3 , 4-6
+5V / 1MB,2MB	3-5 , 4-6

2.9 On Board LAN Setup

Configuring JP3 to open or short will Enabled / Disabled onboard LAN.

- **JP3 : LCD Voltage Setting**

JP3	Function
1-2 OPEN	LAN Disabled
1-2 SHORT	LAN Enabled

Chapter 3. Connection

This chapter describes how to connect peripherals, switches and indicators to the JUKI-740E board.

3.1 Floppy Disk Drive Connector

JUKI-740E board is equipped with a 34-pin daisy-chain driver connector cable.

- **CN25 : FDC CONNECTOR**

PIN	DESCRIPTION	PIN	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#
27	GROUND	28	WRITE PROTECT#
29	GROUND	30	READ DATA#
31	GROUND	32	SIDE 1 SELECT#
33	GROUND	34	DISK CHANGE#

3.2 PCI E-IDE Disk Drive Connector

You can attach up to four IDE(Integrated Device Electronics) hard disk drives to the JUKI-740E IDE controller. IDE also supports Ultra DMA/33 interface.

- **CN21 : Primary IDE Connector**
- **CN21: IDE Interface Connector**

PIN	DESCRIPTION	PIN	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

3.3 Parallel Port

This port is usually connected to a printer. The JUKI-740E has built-in an on-board parallel port accessed through a 26-pin flat-cable connector CN26.

- **CN26 : Parallel Port Connector**

PIN	DESCRIPTION	PIN	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		

3.4 Serial Ports

The JUKI-740E offers two high speed NS16C550 compatible UARTs with Read/Receive 16 byte FIFO serial ports.

- **CN27 : Serial Port DB-9 Connector(COM1)**

PIN	DESCRIPTION
1	DATA CARRIER DETECT (DCD)
2	RECEIVE DATA (RXD)
3	TRANSMIT DATA (TXD)
4	DATA TERMINAL READY (DTR)
5	GROUND (GND)
6	DATA SET READY (DSR)
7	REQUEST TO SEND (RTS)
8	CLEAR TO SEND (CTS)
9	RING INDICATOR (RI)

- **CN28 : Serial Port 10-pin Header(COM2)**

PIN	DESCRIPTION	PIN	DESCRIPTION
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTX
4	DTR	9	RI
5	GND	10	NC

3.5 Keyboard / Mouse Connector

The JUKI-740E provides two keyboard/mouse connectors.

- **CN37 : 5-pin Header Keyboard Connector**

PIN	DESCRIPTION
1	KEYBOARD CLOCK
2	KEYBOARD DATA
3	N/C
4	GROUND
5	+5V

- **CN35 : 5-pin Header Mouse Connector**

PIN	DESCRIPTION
1	MOUSE DATA
2	N/C
3	GROUND
4	+5V
5	MOUSE CLOCK

- **CN36 : 6-pin Mini-DIN Keyboard Connector**

PIN	DESCRIPTION
1	KEYBOARD DATA
2	MOUSE DATA
3	GROUND
4	+5V
5	KEYBOARD CLOCK
6	MOUSE CLOCK

3.6 External Switches and Indicators

There are many external switches and indicators for monitoring and controlling your CPU board.

- **CN2: Speaker Connector**

PIN	DESCRIPTION
1	+5V
2	Speaker Signal

- **CN38 : Reset Connector**

PIN	DESCRIPTION
1	External Reset
2	GROUND

- **CN32 : IDE LED Connector**

PIN	DESCRIPTION
1	+5V
2	HDD ACTIVE#

- **CN24 : FAN Connector**

PIN	DESCRIPTION
1	N/C
2	+12V
3	GROUND

3.7 External Battery Connector

The JUKI-740E has built-in a 3V/850mAH industrial Li-battery for CMOS and RTC backup. In normal operation, power will not need external battery to backup data. If users want to connect external battery source, please take off the jumper places on CN34 's pin 2-3. Then connect the external battery to pin 1-4.

- **CN34 : External Battery Connector**

PIN	DESCRIPTION
1	External Battery +
2	Internal Battery +
3	To CMOS power
4	Ground

3.8 LCD/CRT Connector

The JUKI-740E has a built-in 15-pin VGA connector that allows direct connection to your CRT monitor. There is also a built-in 50-pin connector to support LCD interface.

- **CN29 : 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	DDDA
13	HSYNC	14	VSYNC
15	DDCK		

- **CN3 : 50-pin LCD Interface Connector**

1	VPCLK	2	P33
3	P34	4	P31
5	P35	6	P32
7	P30	8	P28
9	P29	10	P27
11	P25	12	P26
13	P24	14	P21
15	P23	16	P22
17	P16	18	P20
19	P17	20	P18
21	P19	22	P14
23	P13	24	P12
25	P15	26	P11
27	P7	28	P10
29	5V or 3.3V	30	5V or 3.3V
31	P9	32	P8
33	P4	34	P6
35	P3	36	P5
37	P2	38	P1
39	M	40	P0
41	SHFCLK	42	ENABKL
43	FPVDD	44	FLM(V SYS)
45	FPVEE	46	LP(H SYS)
47	GND	48	GND
49	+12V	50	+12V

3.9 LAN RJ45 Connector

The JUKI-740E has built-in a RJ45 LAN connector to support all RJ45 LAN connections.

- **CN30 : LAN RJ45 Connector**

1	TX+	5.	NC
2	TX-	6.	RX-
3.	RX+	7.	NC
4.	NC	8.	NC

- **CN39 LED Connector(2-pin header) for LAN**

1.	5V
2.	10Mbps
3.	5V
4.	100Mbps
5.	5V
6.	Active

Chapter 4. AMI BIOS Setup

The JUKI-740E uses the AMI BIOS for system configuration. The AMI BIOS setup program is designed to provide maximum flexibility in configuring the system through offering various options which may be selected to meet end-users' variety of needs. This chapter is written to assist you in the proper usage of these features.

4.1 Getting Started

When powering on the system, the BIOS will enter the Power-On-Self-Test routines. These routines will be executed are: system test, initialization and system configuration verification. After the POST routines are completed, the following message appears :

" Hit DEL if you want to run SETUP"

To access AMI BIOS Setup program, press key, then you could see the menu screen for you to modify different settings.

When you choose **Load BIOS Defaults** option, the system will load minimized settings for Troubleshooting purposes. Performance should be very poor when this setting is in use.

When you select **Load Setup Defaults** option, the system will load optimized defaults for regular use. Moreover, the system will automatically modify all applicable settings.

4.2 Standard CMOS Setup

The Standard CMOS Setup is used for basic hardware system configuration. The main function is to modify Date/Time setting and Floppy/Hard Disk Drive setting. For IDE hard disk drive setup, please check the following possible setup procedure:

1. Use **Auto** setting for automatic detection during bootup procedure.
2. Use **IDE HDD AUTO DETECTION** in the main menu to automatically enter drive specifications.
3. Manually enter the specifications by yourself from the **User** option.

4.3 Advanced CMOS Setup

This Advanced CMOS Setup is designed for users to tune JUKI-740E board to its best performance. As for normal operation users don't have to change any of the default setting for the defaults is pre-set for most reliable operation. You can also optionally configure system keyboard, primary display and PS/2 mouse to enable or disable at your convenience. The system boot sequence is also configured in this page through first, second, third and fourth boot device setting options.

4.4 Advanced Chipset Setup

The functions in this page are mostly related to ChipSet (ALI 4+). These options are used to change the ChipSet's registers. Please be extra careful in making any changes to the default settings, otherwise system could become unstable.

- **Auto Configuration : Enable or Disable**

When using 60nS general type DRAM, please enable the setting so as to get optimal timings.

- **DRAM Speculative Read : Enable or Disable**

When this option is enabled, the CPU will send predict commands to the SDRAM, if a miss happens, the CPU will cancel this command. As some OS under certain situations have problem in supporting this feature, it is normally disable.

4.5 Peripheral Setup

This section of setup menu is mostly related to Multi-I/O Chip (W83877F and ALI Alladin 4+ chipset). These options are used to change the ChipSet's registers. Please be careful while changing any default settings to meet your application's needs. The thing that you must pay special attention to is the Onboard Serial Port2. If you are using the IrDA port, you will have to set this port accordingly.

The most important configuration in this setup page is **LCD Type setting**. It is located at the bottom right hand side of the menu namely Panel Type selection. Through this option users are allowed to choose from 15 different types of panels. The 15 panel types are:

1. **1024x768 Dual Scan STN Color**
2. **1280x1024 TFT**
3. **640x480 STN**
4. **800x600 STN**
5. **640x480 TFT**
6. **640x480 18bit**
7. **1024x768 TFT**
8. **800x600 TFT**
9. **800x600 TFT**
10. **800x600 TFT**
11. **800x600 STN**
12. **800x600 STN**
13. **1024x768 TFT**
14. **1280x1024 STN**
15. **1024x600 STN**

4.6 Power Management Setup

Power Management Setup help users to administer JUKI-740E board's "green" function. The features in this configuration page could shut down video display and hard disk to save energy. For example, in **Power Management/APM**, you have Disable, Max Saving, Min Saving, or User Defined four options to choose from.

Note : **Advanced Power Management(APM)** have to be installed to keep the system time updated when the computer enters suspend mode activated by the Power Management. Under DOS environment, you will need to add `DEVICE=C:\DOS\POWER.EXE` into your `CONFIG.SYS` Under Windows 3.x and Windows 95, you will have to install Windows with APM feature. After installation is complete, a battery and power cord icon labeled "Power" Will appear in the "Control Panel"

Appendix A. Watch-Dog Timer

The Watch-Dog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that caused the CPU to crash. This condition may have occurred due to external EMI or a software bug. When the CPU stops working correctly, onboard hardware will either perform a hardware reset (cold boot) or a non-maskable interrupt (NMI) to bring the system back to a known state.

The Watch-Dog Timer is controlled by two I/O ports.

443 (hex)	Read	Enable the refresh the Watch-Dog Timer.
843 (hex)	Read	Disable the Watch-Dog Timer.

To enable the Watch-Dog Timer, a read from I/O port 443H must be performed. This will enable and activate the countdown timer which will eventually time out and either reset CPU or cause an NMI depending on the setting of JP7. To ensure that this reset condition does not occur, the Watch-Dog Timer must be periodically refreshed by reading the same I/O port 443H. This must be done within the time out period that is selected through jumper group JP8.

A tolerance of at least 30% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time consuming. Therefore if the time out period has been set to 10 seconds, the I/O port 443H must be read within 7 seconds.

Note: When exiting a program it is necessary to disable the Watch-Dog Timer, otherwise the system will reset.

Appendix B.

FP24-01 Flat Panel Connection Module

The FP24-01 connection module is installed on the JUKI-740E as a standard product feature. FP24-01 converts JUKI-740E's on board 50pin LCD interface signal to the 44-pin (2x20 pin header) and 41pin (Hirose DF9-41P-1V) LCD connectors. The 44-pin or 41-pin connector will only support 24-bit flat panel.

- **J3 : 44-pin LCD Interface Connector**

1	+12V	2	+12V
3	GND	4	GND
5	5V or 3.3V	6	5V or 3.3V
7	FPVVEE	8	GND
9	P0	10	P1
11	P2	12	P3
13	P4	14	P5
15	P6	16	P7
17	P8	18	P9
19	P10	20	P11
21	P12	22	P13
23	P14	24	P15
25	P16	26	P17
27	P18	28	P19
29	P20	30	P21
31	P22	32	P23
33	GND	34	GND
35	SHFCLK	36	FLM
37	M	38	LP
39	GND	40	ENABKL
41	N/C	42	N/C
43	FPVDD	44	5V or 3.3V

- **J1 : 41-pin LCD Interface Connector**

1	P20	2	GND
3	P16	4	5V or 3.3V
5	P21	6	P0
7	P17	8	P8
9	P22	10	P1
11	P18	12	P9
13	P23	14	P2
15	P19	16	P10
17	5V or 3.3V	18	P3
19	FLM	20	P11
21	M	22	P4
23	LP	24	P12
25	SHFCLK	26	P5
27	5V or 3.3V	28	P13
29	5V or 3.3V	30	P6
31	ENABKL	32	P14
33	FPVDD	34	P7
35	FPVVEE	36	P15
37	GND	38	+12V
39	GND	40	+12V
41	N/C		

- **J2 : LCD Backlight Power Connector**

PIN	DESCRIPTION
1	N/C
2	GND
3	3.3V or 5V
4	GND
5	FPVVE Inverter Enable