

**JUKI-6752 Ver 1.0**  
**Low Power Pentium® MMX 266**  
**with CRT/LCD,Ethernet**  
**Single Board Computer**

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## Introduction

Welcome to the JUKI-6752 Pentium® with VGA Single Board Computer. The JUKI-6752 board is an ISA form factor board, which comes equipped with high performance and low power 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 built-in Compact Flash Disk for embedded application. The Compact Flash Disk is 100% compatible to hard disk. User can use any DOS command without any extra software utility.

An advanced high performance super AT I/O chip – Winbond W83977TF-AW is used in the JUKI-6752 board. Both on-chip UARTs are compatible with the NS16C550. The parallel port and IDE interface are compatible with IBM PC/AT and XT architecture's.

In addition, the JUKI-6752 provides one 144-pin SODIMM sockets for its on-board SDRAM. The RAM module accepts 8MB, 16MB, 32MB, 64MB, 128MB or 256MB. So, the total on-board memory can be configured to 256MB.

JUKI-6752 uses the advanced INTEL Chipset, 430TX which is 100% ISA/PCI compatible chipset with PCI 2.1 standard.

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## 1.1 Specifications :

The JUKI-6752 Pentium® with VGA Single Board Computer provides the following specification:

- **CPU** : Low power Pentium® MMX 166/266 MHZ (Tillamook PBGA)
- **Bus** : ISA bus
- **DMA channels** : 7
- **Interrupt levels** : 15
- **Chipset** : Intel 430TX
- **PCI VGA** : C&T 69000 with 2MB SDRAM built-in Chipset
  - Resolution : 1280x1024, 256 color, 60Hz
  - 1024x768, 64K color, 85Hz
  - 800x600, full color, 85Hz
- **Ethernet Interface** :
  - Chipset : Intel 82559ER 100Base-TX Fast Ethernet Controller
  - Ethernet Interface : Onboard 100Base-TX RJ-45+LED Connector
- **H/W status Monitoring** : Winbond W83782D H/W status monitoring IC supports power supply voltages and temperatures monitoring
- **Real-Time Clock/Calendar** : Intel 430TX chipset, backup by industrial Li-battery, 3V/300mAh. .
- **DRAM** : supports up to 256MB, SDRAM.
- **Second Cache Memory** : 512KB Pipelined Burst SRAM on board
- **Ultra DMA/33 IDE Interface** : supports up to two PCI Enhance IDE hard drives. The Ultra DMA/33 IDE can handle data transfer up to 33MB/s. The best of all is that it is compatible with existing ATA-2 IDE specifications. So there is no need to do any change for customer's current accessory.
- **Floppy disk drive interface** : two 2.88 MB, 1.44MB, 1.2MB, 720KB, or 360KB floppy disk drives.

- **Two high speed Serial ports** : NS16C550 compatible UARTs, and one RS422/485 port with auto-direction function.
- **Bi-directional Parallel Port** :
- **IrDA port** : Support serial Infrared (SIR) .
- **USB port** : Support two USB ports for future expansion, USB 1.1 compliant.
- **Watch-dog timer**
- **CompactFlash disk** : The CompactFlash Storage Card also runs in True IDE Mode that is compatible with an IDE disk drive. It can be used with a passive adapter in a Type II socket.
- **Keyboard connector**
- **Mouse** : PS/2 Mouse Port on-board.
- **Power Consumption** : +5V @ 2.4A  
( Pentium/MMX-266,64MB SDRAM)
- **Operating Temperature** : 0° ~ 60 ° C ( CPU needs heat sink)

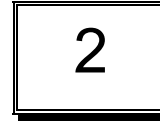
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## 1.2 What You Have

Before you install the product, please check the following materials are included in the package:

- 1 JUKI-6752 All-in-one single board computer
- 1 CD disk for utility and drivers
- 1 3.5" IDE flat cable (40-pin 2.0mm pitch to 40-pin 2.54mm pitch)
- 1 one to two 6pin mini Din connector for keyboard and mouse
- 1 combo serial port cable (RS-232/422/485)
- 1 standard D25 connector for parallel cable
- 1 floppy cable (for 3.5" FDD only)

If any of these items are missing or damaged, contact your distributor or sales representative immediately.



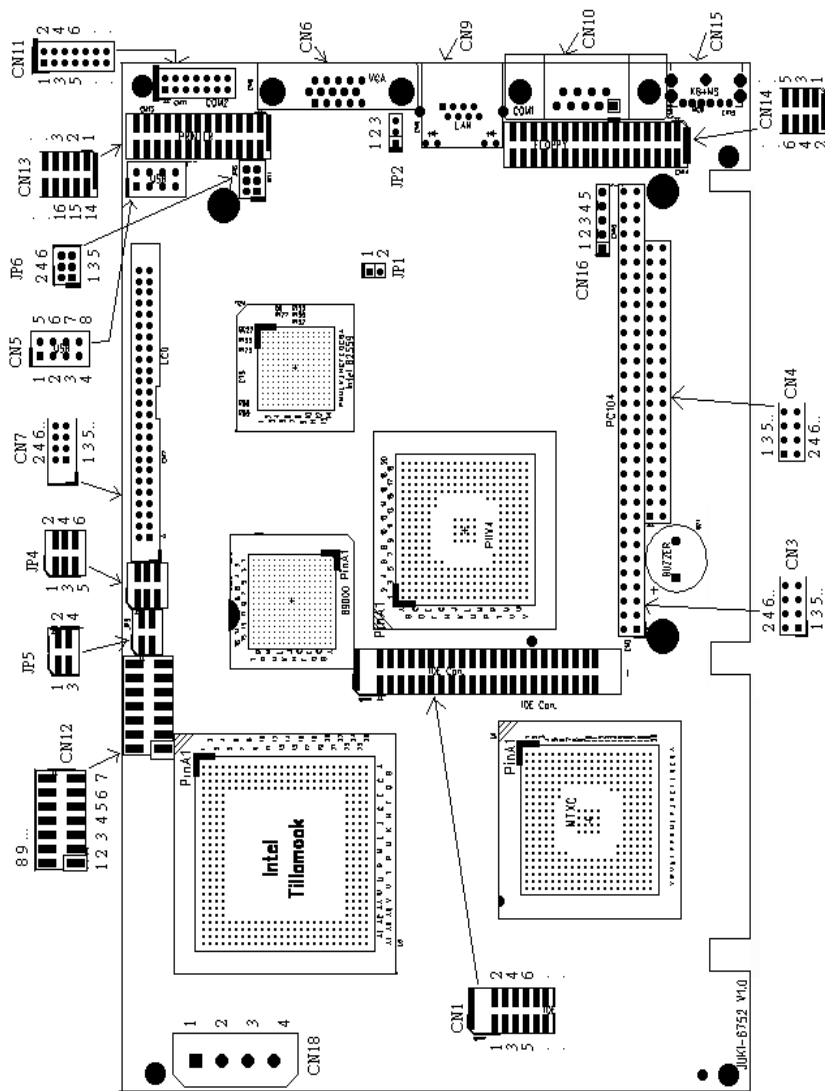
## Installation

This chapter describes how to install the JUKI-6752. At first, the layout of JUKI-6752 is shown, and the unpacking information that you should be careful is described. The jumpers and switches setting for the JUKI-6752's configuration, such as watch dog timer, are also included.

---

### 2.1 JUKI-6752 Layout

(Please refer to last page)



## 2.2 Unpacking

Your JUKI-6752 Single Board Computer contains sensitive electronic components that can be easily damaged by static electricity.

In this section, we describe the precautions you should take while unpacking, as well as during installation. It is very important that the instructions be followed correctly, to avoid static damage, and to successfully install the board.

The system board should be done on a grounded anti-static mat. The operator should be wearing an anti-static wristband, grounded at the same point as the anti-static mat.

Inspect the cardboard carton for obvious damage. Shipping and handling may cause damage to your board. Be sure there are no shipping and handling damages on the board before processing.

After opening the cardboard carton, exact the system board and place it only on a grounded anti-static surface component side up.

Again inspect the board for damage. Press down on all the socketed IC's to make sure that they are properly seated. Do this only with the board place on a firm flat surface.

---

**Note : DO NOT APPLY POWER TO THE BOARD IF IT HAS BEEN DAMAGED.**

---

You are now ready to install your JUKI-6752 Single Board Computer.

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## 2.3 Compact Flash Setting (JP1)

Set the operating mode of CompactFlash disk.

### •JP1 : Compact Flash Setting

Address	JP1
MASTER	CLOSE
SLAVE	OPEN

---

## 2.4 Clear CMOS Setup (JP2)

If want to clear the CMOS Setup(for example forgot the password you should clear the setup and then set the password again.),you should close the JP2 pin 2-3 about 3 seconds,then open again. Set back to normal operation mode,close pin 1-2.

### •JP2 : Clear CMOS Setup (Reserve Function)

JP2	DESCRIPTION
1-2	Normal Operation
2-3	Clear CMOS Setup

---

## 2.5 LCD Voltage and Clock setting (JP4)

The LCD interface connector CN7 can provide 5V or 3.3V power supply by selecting the JP4(2,4,6) to meet the different LCD requirement. And the JP4(1,3,5) can provide normal or inverted Shift CLOCK for LCD.

JP4(2,4,6)	DESCRIPTION
2-4	5V
4-6	3.3V

JP4(1,3,5)	DESCRIPTION
1-3	Shift Clock Invert
3-5	Shift Clock (Normal)

---

## 2.6 COM2 RS-232, RS-422 or RS-485 Setting (JP5)

The COM2 (CN11) can be set to RS-232 or RS-422/485 for industrial field site application. Moreover when this port was set to the RS-485 mode, the board equipped with self-tuner IC will automatically sense the data direction to eliminate the data collision. This is especially important in WINDOWS programming which do not allow the program to catch the control pin at your wish.

JP5	DESCRIPTION
1-2	RS232
3-4	RS422/RS485

---

## 2.7 COM2 PIN8 Setting (JP6)

In the RS232 mode,the COM2 (CN11) can supply +5V or +12V power to the serial devices via RI pin (Pin 8) of the COM port connector . The maximal current is 1A with fuse protection, from these two connector's 5V/12V output. If the output is set to 12V, make sure that you have 12V supply to the board.

CN9 Pin 8	JP6(1,3,5)	JP6(2,4,6)	JP5
RI Signal	Don't care	4-6	1-2
+5V	1-3	2-4	1-2
+12V	3-5	2-4	1-2

# 3

## Connection

This chapter describes how to connect peripherals, switches and indicators to the JUKI-6752 board.

### 3.1 IDE Disk Drive Connector(CN1)

You can attach two IDE( Integrated Device Electronics) hard disk drives to the JUKI-6752 IDE controller(Primary). The IDE supports Ultra DMA/33 interface .

#### •CN1: IDE Interface Connector (2.0MM)

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	VCC	42	VCC
43	GROUND	44	N/C

### 3.2 CompactFlash Connector -- TYPE II(CN2)

You can attach one Compact Flash Disk to CN2 that occupy the secondary IDE channel. The CN2 supports the TYPE II and TYPE I module.

#### •CN2 : CompactFlash Connector (Secondary IDE)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	26	VCC-IN CHECK1
2	DATA 3	27	DATA 11
3	DATA 4	28	DATA 12
4	DATA 5	29	DATA 13
5	DATA 6	30	DATA 14
6	DATA 7	31	DATA 15
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	VCC_COM	38	VCC_COM
14	N/C	39	CSEL
15	N/C	40	N/C
16	N/C	41	HDD_RESET
17	N/C	42	IORDY
18	SA2	43	N/C
19	SA1	44	VCC_COM
20	SA0	45	HDD_ACTIVE#
21	DATA 0	46	N/C
22	DATA 1	47	DATA 8
23	DATA 2	48	DATA 9
24	N/C	49	DATA 10
25	VCC-IN CHECK2	50	GROUND

### 3.3 PC/104 Connection Bus(CN3,CN4)

The JUKI-6752 PC/104 expansion bus let you attach any kind of PC/104 modules. The PC/104 bus has already become the industrial embedded PC bus standard, so you can easily install over thousands of PC/104 modules from hundreds of vendors in the world. There are two PC/104 connectors on this board: PC/104-64 and PC/104-40.

#### •CN3 : PC/104-64 Connector

PIN NO.	Description	PIN NO.	Description
1	IOCHCK#	2	GND
3	SD7	4	IRSTDRV
5	SD6	6	VCC
7	SD5	8	IRQ9
9	SD4	10	-5V
11	SD3	12	N/C
13	SD2	14	-12V
15	SD1	16	ZWS
17	SD0	18	+12V
19	IOCHRDY	20	GND
21	AEN	22	SMEMW#
23	SA19	24	SMEMR#
25	SA18	26	IOW#
27	SA17	28	IOR#
29	SA16	30	DACK3#
31	SA15	32	DRQ3
33	SA14	34	DACK1#
35	SA13	36	DRQ1
37	SA12	38	REFRESH#
39	SA11	40	SYSCLK
41	SA10	42	IRQ7
43	SA9	44	N/C
45	SA8	46	IRQ5
47	SA7	48	IRQ4
49	SA6	50	IRQ3
51	SA5	52	N/C
53	SA4	54	TC
55	SA3	56	BALE

57	SA2	58	VCC
59	SA1	60	OSC
61	SA0	62	GND
63	GND	64	GND

#### •CN4 : PC/104-40 Connector

PIN NO.	Description	PIN NO	Description
1	GND	2	GND
3	SBHE#	4	MCS16#
5	LA23	6	IOCS16#
7	LA22	8	IRQ10
9	LA21	10	IRQ11
11	LA20	12	IRQ12
13	LA19	14	IRQ15
15	LA18	16	IRQ14
17	LA17	18	DACK0#
19	MEMR#	20	DRQ0
21	MEMW#	22	DACK5#
23	SD8	24	DRQ5
25	SD9	26	DACK6#
27	SD10	28	DRQ6
29	SD11	30	DACK7#
31	SD12	32	DRQ7
33	SD13	34	VCC
35	SD14	36	MASTER#
37	SD15	38	GND
39	GND	40	GND

### 3.4 USB Port Connector(CN5)

The JUKI-6752 built in two USB ports for the future new I/O bus expansion. It is USB 1.1 compliant

#### •CN5: USB 0 & USB 1

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



### 3.5 VGA Connector(CN6)

The JUKI-6752 built in a 15-pin VGA connector that accepts the CRT monitor.

•**CN6 : 15-pin Female Connector**

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

### 3.6 LCD Interface Connector(CN7)

The JUKI-6752 provides a 2x25-pin connector for the LCD flat panel interface .

The JUKI-6752 comes to support TFT/DSTN LCD panels at following display options : (This is a reference table only, may support more type of panels)

Display type	Resolution	Example
TFT VGA	640X480 , 64K Color, 18bits	Toshiba LTM10C209A
TFT SVGA	800X600 , 64K Color, 18bits	Toshiba LTM12C275A
TFT XGA	1024X768,64K Color, 36bits	Sharp LQ150X1DG11

The display options need to be setup manually from BIOS. The BIOS “**Standard CMOS**” Setup will allow you to choose display resolution either 640X480 or 800X600.

- **CN7: LCD Interface Connector** – support up to 36 bit LCD. For better display quality, the length of LCD cable should be shorter than 45 cm.

PIN NO.	Description	PIN NO.	Description
1	NC	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	FPVCC	30	FPVCC
31	P9	32	P8
33	P4	34	P6
35	P3	36	P5
37	P2	38	P1
39	M	40	P0
41	SHIFT CLOCK	42	
43	FPVDD	44	ENABKIFLM
45	ENAVEE	46	LP
47	GND	48	GND
49	+12V	50	+12V

### 3.7 LAN RJ45 Connector (CN9)

The JUKI-6752 built-in RJ45 LAN connector is for 10/100Mbps Ethernet (82559ER).

●CN9: LAN RJ45 Connector

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

### 3.8 Serial Ports(CN10,CN11)

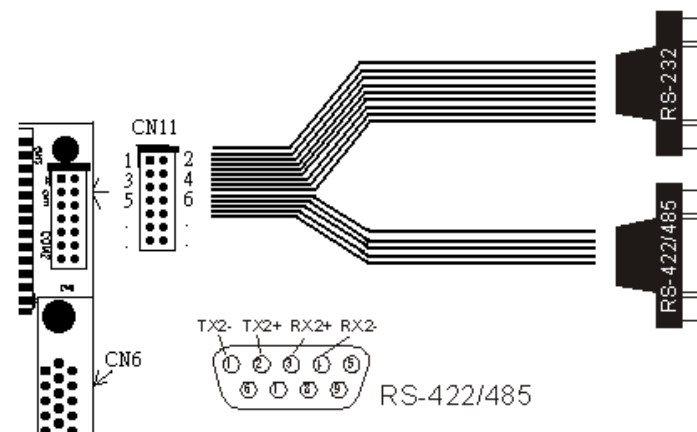
The JUKI-6752 offers two high speed NS16C550 compatible UARTs with Read/Receive 16 byte FIFO serial ports.

●CN10 : Serial Port DB-9 Connector( COM1)

PIN NO.	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)

●CN11 : Serial Port 14-pin Header( COM2)

Pin No.	Description	Pin No.	Description
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTX
7	DTR	8	RI
9	GND	10	NC
11	RS422/RS485 TX2+	12	RS422/RS485 TX2-
13	RS422 RX2+	14	RS422 RX2-



Notes:If you want to use the RS485 mode that just connect to TX2-,TX2+.If you want to use the RS422 mode that connect to TX2-,TX2+,RX2+,RX2-.

### 3.9 IrDA Infrared Interface Port (CN12-1~5)

The JUKI-6752 built in a IrDA port which support Serial Infrared (SIR) . When use the IrDA port have to set SIR model in the BIOS's Peripheral Setup's COM2. Then the normal RS-232 COM2 will be disabled.

●CN12(PIN 1 ~5): IrDA connector

PIN NO.	DISCRPTION
1	VCC
2	N/C
3	IRRX
4	Ground
5	IRTX

---

### 3.10 Reset Switch (CN12-6,7)

You can connect an external switch to reset your computer easily.

• **CN12(PIN 6,7): Reset Switch connector**

PIN NO.	DISCRPTION
6	Reset_In
7	GND

---

### 3.11 External / Internal Speaker (CN12-8~11)

The CPU card has its own buzzer. You can also connect to the External speaker on your chassis.

• **CN12(PIN 8~11): Speaker connector**

PIN NO.	DISCRPTION
8	VCC
9	N/C
10	Buzzer Internal
11	Buzzer External

---

### 3.12 Hard Drive LED (CN12-13,14)

You can connect an LED to indicate when an IDE device is in use.

• **CN12(PIN 13,14): LED connector**

PIN NO.	DISCRPTION
13	HDD_LED +
14	HDD_LED -

---

### 3.13 Parallel Port(CN13)

This port is usually connected to a printer, The JUKI-6752 includes an on-board parallel port, accessed through a 26-pin flat-cable connector CN13.

• **CN13 : Parallel Port Connector(2.0MM)**

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	NC

---

### 3.14 Floppy Disk Drive Connector(CN14)

JUKI-6752 board equipped with a 34-pin daisy-chain driver connector cable.

• **CN14 : FDC CONNECTOR (2.0MM)**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	2	REDUCE WRITE
3	GROUND	4	N/C
5	N/C	6	DRV DEN1
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#

---

### 3.15 Keyboard Connector(CN15,CN16)

The JUKI-6752 provides one external keyboard and one PS/2 keyboard & mouse connectors.

#### •CN15 : 6-pin Mini-DIN Keyboard & Mouse Connector

PIN NO.	DESCRIPTION
1	KB DATA
2	MS DATA
3	GND
4	+5V
5	KB CLOCK
6	MS CLOCK

#### •CN16 : 5-pin external Keyboard Connector

PIN NO.	DESCRIPTION
1	KB CLOCK
2	KB DATA
3	N/C
4	GND
5	+5V

---

### 3.16 External Power Connector(CN18)

The JUKI-6752 has an on-board external power connector CN18. You can connect power directly to the CPU board.

#### •CN18: External Power Connector

PIN NO.	DESCRIPTION
1	+12V
2	GROUND
3	GROUND
4	+5V

---

### 3.17 Fan Connector (FAN1)

The JUKI-6752 provides a CPU cooling fan connector. This connector can supply 5V/500mA to the cooling fan.

#### •FAN1 : CPU Fan Connector

PIN NO.	DESCRIPTION
1	+5V
2	GND

# 4

## AWARD BIOS Setup

The JUKI-6752 uses the AWARD PCI/ISA BIOS for system configuration. The AWARD BIOS setup program is designed to provide maximum flexibility in configuring the system by offering various options which may be selected for end-user requirements. This chapter is written to assist you in the proper usage of these features.

### 4.1 Getting Start

When power on the system, the BIOS will enter the Power-On-Self-Test routines. These routines will be executed for system test and 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 AWARD PCI/ISA BIOS Setup program, press <Del> key. The following screen will be displayed at this time.

ROM PCI/ISA BIOS (2A59119E )  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	HDD LOW LEVEL FORMAT
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
Esc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color

When choose **Load BIOS Defaults** will load the minimized settings for Troubleshooting. The performance should be very poor when use this setting.

When choose **Load Setup Defaults** will load optimized defaults for regular use. Choosing this setting, will modify all applicable settings.

## 4.2 Standard CMOS Setup

The Standard CMOS Setup is used for basic hardware system configuration. The main function is for Date/Time setting and Floppy/Hard Disk Drive setting. Please refer the following screen for this setup.

```

ROM PCI/ISA BIOS (2A59119E)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

```

---

```

Date (mm:dd:yy) : Tue, Jul 11 2000
Time (hh:mm:ss) : 19 : 20 : 10

```

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	: Auto	0	0	0	0	0	0	AUTO
Primary Slave	: Auto	0	0	0	0	0	0	AUTO
Secondary Master	: Auto	0	0	0	0	0	0	AUTO
Secondary Slave	: Auto	0	0	0	0	0	0	AUTO

```

Drive A : 1.44M, 3.5 in.
Drive B : None

```

```

LCD&CRT : Both
Panel   : 800X600 TFT
Halt On : All Errors

```

---

```

ESC : Quit           ↑ ↓ → ← : Select Item      PU/PD/+/- : Modify
F1  : Help          (Shift)F2 : Change Color

```

---

For IDE hard disk drive setup, please check the following possible setup procedure,

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

LCD&CRT: This field may appear as an alternative to the video Field. Select your video display device.

LCD: Liquid Crystal Display

CRT: Auxiliary monitor. When you want to use CRT only, please select this option. The CRT will have good screen.

Both: Display on both device. When you want to use both display, please select this option.

Panel: This field have eight option that have

**1024x768 DSTN,**  
**640X480 MONO,**  
**640X480 DSTN ,**  
**800X600 DSTN ,**  
**640X480 TFT(12bits),**  
**640X480 TFT(18bits),**  
**1024X768 TFT,**  
**800X600 TFT.**

Please refer to page 13 .

**Halt On (All Errors) :** You could choose **All Errors, No Errors All, but Keyboard .All, but Diskette,** and **All, but Disk/Key**

As for some embedded system which don't need keyboard and monitor in application, then you could choose No Errors.

### 4.3 BIOS Features Setup

This BIOS Features Setup is designed for customer's tuning best performance of the JUKI-6752 board. As for normal operation customers don't have to change any default setting. The default setting is pre-set for most reliable operation.

ROM PCI/ISA BIOS (2A59II9E) BIOS FEATURES SETUP AWARD SOFTWARE, INC.	
Virus Warning	: Disabled
External Cache	: Enabled
Quick Power On Self Test	: Disabled
Boot Sequence	: C,A,SCSI
Swap Floppy Drive	: Disabled
Boot Up Floppy Seek	: Enabled
Boot Up NumLock Status	: On
Boot Up System Speed	: High
Gate A20 Option	: Fast
Typematic Rate Setting	: Disabled
Typematic Rate (Chars/Sec)	: 6
Typematic Delay (Msec)	: 250
Security Option	: Setup
PCI/VGA Palette Snoop	: Disabled
OS Select For DRAM > 64MB	: Non-OS2
Video BIOS Shadow	: Enabled
C8000-CBFFF Shadow	: Disabled
CC000-CFFFF Shadow	: Disabled
D0000-D3FFF Shadow	: Disabled
D4000-D7FFF Shadow	: Disabled
D8000-DBFFF Shadow	: Disabled
DC000-DFFFF Shadow	: Disabled
ESC	: Quit
F1	: Help
F5	: Old Values (Shift)F2 : Color
F6	: Load BIOS Defaults
F7	: Load Setup Defaults
↑↓←→	: Select Item
PU/PD/+/-	: Modify

#### BootUp Sequence :

You could set the sequence of A:,C:,and CDROM.

#### Video BIOS Shadow C000,32K:

**Enable** - Will increase the video speed.

#### Shadow C8000-CFFFF,D0000-D7FFF,& D8000-DFFFF :

When the installed add-on card's ROM address is as above address, you could enable the shadow to get higher operation performance. When you enable the shadow function, it will also reduce the memory available by between 640KB and 1024KB.

### 4.4 Chipset Features Setup

This setup functions are almost working for ChipSet(Intel 430TX). These options are used to change the ChipSet's registers. Please carefully change any default setting ,otherwise the system could be running un-stable.

ROM PCI/ISA BIOS (2A59II9E) CHIPSET FEATURES SETUP AWARD SOFTWARE, INC.	
Auto Configuration	: Enabled
DRAM Timing	: 70ns
DRAM Leadoff Timing	: 10/6/3
DRAM Read Burst (EDO/FP)	: x222/x333
DRAM Write Burst Timing	: x222
Fast EDO Lead Off	: Disabled
Refresh RAS# Assertion	: 4 Clks
Fast RAS To CAS Delay	: 3
Fast MA to RAS# Delay	: 2 Clks
SDRAM(CAS Lat/RAS-to-CAS)	: 3/3
System BIOS Cacheable	: Enabled
Video BIOS Cacheable	: Enabled
8 Bit I/O Recovery Time	: 1
16 Bit I/O Recovery Time	: 2
Memory Hole At 15M-16M	: Disabled
PCI 2.1 Compliance	: Disabled
Auto Detect DIMM/PCI Clk	: Enabled
Spread Spectrum Modulated	: Disabled
CPU Warning Temperature	: Disabled
Current CPU Temperature	: 54°C/129°F
CPUcore:	2.03V
CPUi/o	2.52V
+3.3V	: 3.31V
+5 V	: 5.08V
+12 V	: 12.10V
-12 V	: -12.08V
-5 V	: -5.10V
ESC	: Quit
F1	: Help
F5	: Old Values (Shift)F2 : Color
F6	: Load BIOS Defaults
F7	: Load Setup Defaults
↑↓←→	: Select Item
PU/PD/+/-	: Modify

#### **Auto Configuration : Enable or Disable**

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

#### **SDRAM Speculative Read : Enable or Disable**

When enable this option, the PCU will send predict commands to the SDRAM, if a miss happens, the CPU will cancel this command. Because some OS under certain situations have problem for this feature, it is normally disable.

**Memory Hole at 15M-16M : Enable or Disable**

This setting reserve 15MB to 16MB memory address space for ISA expansion cards that specifically require this setting. Memory from 15MB and up will be unavailable to the system because expansion cards can only access memory up to 16MB.

**CPU Warring Temperature : Disable,50 ..**

There have a temperature sensor near the CPU,when set the CPU Warring Tempture to a certain limit which will help customer secure the system not burn out because of fan failed or other accident.

**Hardware Monitoring** : Customer could see the working status of this board for **Current CPU Temperature, Vcore voltage, Vio voltage,+5V,-5V,+12V,and -12V status.**You can see the temperature of the CPU but you must supptort the -5V , -12V.

**4.5 Integrated Peripherals**

This setup is almost working for Multi-I/O Chip(W83977TF-AW ). These options are used to change the ChipSet's registers. Please carefully change any default setting to meet your application need perfectly. The only special concern is Onboard Serial Port2. If you are using the IrDA port,you have to set this port accordingly.

ROM PCI/ISA BIOS ( 2A59H9E )  
INTEGRATED PERIPHERALS  
AWARD SOFTWARE, INC.

On-Chip Primary PCI IDE: Enabled	
On-Chip Secondary PCI IDE: Enabled	
IDE HDD Block Mode : Enabled	Onboard Parallel Port : 378/IRQ7
IDE Primary Master PIO : Auto	Parallel Port Mode : SPP
IDE Primary Slave PIO : Auto	
IDE Primary Master UDMA : Auto	
IDE Primary Slave UDMA : Auto	
USB Keyboard Support : Disabled	
PS/2 mouse function control: Enabled	
KBC input clock : 8 MHz	
Onboard FDC Controller : Enabled	ESC : Quit           ↑↓←→ : Select Item
Onboard Serial Port 1 : 3F8/IRQ4	F1 : Help            PU/PD/+/- : Modify
Onboard Serial Port 2 : 2F8/IRQ3	F5 : Old Values   (Shift)F2 : Color
UART Mode Select : Normal	F6 : Load BIOS Defaults
	F7 : Load Setup Defaults



## 4.6 Power Management Setup

Power Management Setup help user handles the JUKI-6752 board's "green" function. The features could shut down the video display and hard disk to save energy for example. The power management setup screen is as following,

```

ROM PCI/ISA BIOS (2A59II9E)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

```

Power Management	: Disabled	** Reload Global Timer Events **
PM Control by APM	: Yes	IRQ[3-7,9-15],NMI
Video Off Method	: Blank Screen	: Enabled
Video Off After	: Standby	Primary IDE 0
MODEM Use IRQ	: 3	: Disabled
Doze Mode	: Disabled	Primary IDE 1
Standby Mode	: Disabled	: Disabled
Suspend Mode	: Disabled	Secondary IDE 0
HDD Power Down	: Disabled	: Disabled
Throttle Duty Cycle	: 62.5%	Secondary IDE 1
PCI/VGA Act-Monitor	: Enabled	: Disabled
PowerOn by Ring	: Enabled	Floppy Disk
Resume by Alarm	: Disabled	: Disabled
		Serial Port
		: Enabled
		Parallel Port
		: Disabled
IRQ 8 Break Suspend	: Disabled	
		ESC : Quit
		↑↓←→ : Select Item
		F1 : Help
		PU/PD/+/- : Modify
		F5 : Old Values (Shift)F2 : Color
		F6 : Load BIOS Defaults
		F7 : Load Setup Defaults

Under Windows 3.x and Windows 95, you have to install Windows with APM feature. A battery and power cord icon labeled "Power" will appear in the "Control Panel"

### Power Management : Disable, Max Saving, Min Saving, or User Defined

Max Saving puts the system into power saving mode after a brief inactivity period. Min Saving is almost the same as Max Saving except that the inactivity period is longer. User Defined allows you to set power saving options according to your requirement.

**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 need to add  
 DEVICE=C:\DOS\POWER.EXE in your CONFIG.SYS

## 4.7 PNP/PCI Configuration

The PNP/PCI Configuration help user handles the JUKI-6752 board's "PCI" function. All PCI bus slots on the system use INTA#, thus all installed PCI slots must be set to this value..

ROM PCI/ISA BIOS ( 2A59II9E ) PNP/PCI CONFIGURATION AWARD SOFTWARE, INC.	
PNP OS Installed : No	PCI IDE IRQ Map To : ISA
Resources Controlled By : Auto	
Reset Configuration Data : Disabled	
ESC : Quit           ↑↓←→ : Select Item F1 : Help            PU/PD/+/- : Modify F5 : Old Values     (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults	

### PNP OS Installed : Yes or No

When PNP OS is installed, interrupts may be reassigned by the OS when the setting is Yes. When a non-PNP OS is installed or to prevent reassigning of interrupt settings, select setting to No.

## Appendix A. Watch-Dog Timer

The WatchDog Timer is a device to ensure that standalone systems can always recover from abnormal conditions that cause the system to crash. These conditions may result from an external EMI or a software bug. When the system stops working, hardware on the board will perform hardware reset (cold boot) to bring the system back to a known state.

Three I/O ports control the operation of WatchDog Timer.

443 (hex)	Write	Set WatchDog Time period
443 (hex)	Read	Enable the refresh the WatchDog Timer.
043/843 (hex)	Read	Disable the WatchDog Timer.

Prior to enable the WatchDog Timer, user has to set the time-out period. The resolution of the timer is 1 second and the range of the timer is from 1 sec to 255 sec. You need to send the time-out value to the I/O port – 443H, and then enable it by reading data from the same I/O port – 443H. This will activate the timer that will eventually time out and reset the CPU board. To ensure that this reset condition won't occur, the WatchDog Timer must be periodically refreshed by reading the same I/O port 443H. This must be done within the time-out period that is set by the software, please refer to the example program. Finally, we have to disable the WatchDog timer by reading the I/O port -- 843H or 043H. Otherwise the system could reset unconditionally.

---

*A tolerance of at least 5% must be maintained to avoid unknown routines in 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.*

---

### Example assembly program:

```
TIMER_PORT = 443H
TIMER_START = 443H
TIMER_STOP = 843H
;;INITIAL TIMER COUNTER
MOV DX, TIMER_PORT
MOV AL, 8 ;;8 seconds
OUT DX, AL
MOV DX, TIMER_START
IN AL, DX. ;;START COUNTER

W_LOOP:
MOV DX, TIMER_STOP
IN AL, DX
MOV DX, TIMER_START
IN AL, DX ;;RESTART COUNTER
;;ADD YOUR APPLICATION HERE
CMP EXIT_AP, 0
JNE W_LOOP
MOV DX, TIMER_STOP
IN AL, DX
;;EXIT AP
```

## Appendix B. I/O Address Map

### B.1 System I/O Address Map

I/O Address Map	Description
000-01F	DMA Controller #1
020-021	Interrupt Controller # 1, Master
022-023	Chipset address
040-05F	System Timer
060-06F	Standard 101/102 keyboard Controller
070-07F	Real time Clock, NMI Controller
080-0BF	DMA Page Register
0A0-0BF	Interrupt Controller # 2
0C0-0DF	DMA Controller # 2
0F0-0F0	Clear Math Coprocessor Busy
0F1-0F1	Reset Math Coprocessor
0F8-0FF	Math Coprocessor
1F0-1F8	VIR BUS Master PCI IDE Controller
200-207	Game I/O
278-27F	Reserved
2F8-2FF	Serial Port 2
378-37F	Parallel Printer Port 1
3B0-3DF	Cyrix Graphic Adapter
3F0-3F7	Floppy Disk Controller
3F8-3FF	Serial Port 1
443	Watch dog timer enable
043/843	Watch dog timer disable

---

## B.2 DMA channel assignments

<i>Channel</i>	<b>Function</b>
0	Available
1	Audio*
2	Floppy disk (8-bit transfer)
3	Parallel**
4	Cascade for DMA controller 1
5	Audio*
6	Available
7	Available

\*\*parallel port DMA default setting: DMA 3

parallel port DMA select: DMA 1.3

---

## B.3 Interrupt assignments

Interrupt #	Interrupt source
NMI	Parity error detected
IRQ 0	System timer
IRQ 1	Keyboard
IRQ 2	Interrupt from controller 2 (cascade)
IRQ 8	Real-time clock
IRQ 9	Available
IRQ 10	Available
IRQ 11	Available
IRQ 12	PS/2 mouse
IRQ 13	Numeric data processor
IRQ 14	Fixed disk controller
IRQ 15	USB controller
IRQ 3	Available
IRQ 4	Serial communication port 1
IRQ 5	Audio*
IRQ 6	Diskette controller (FDC)
IRQ 7	Parallel port 1 (print port)

\* Audio default setting: IRQ5

Ethernet IRQ is automatic set by the system

---

## B.4 1<sup>st</sup> MB memory map

Address	Description
F000h-FFFFh	System ROM
D800h-EFFFh	Unused
D000h-D7FFh	Unused
C000h-C9FFh	Expansion ROM*
B800h-BFFFh	CGA/EGA/VGA text
B000h-B7FFh	Unused
A000h-AFFFh	EGA/VGA graphics
0000h-9FFFh	Base memory

\* Default setting

