JUKI−760E

Version 2.5

December 10, 2003

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Chapter 1. Introduction

Thank you for choosing JUKI-760E 500MHz K6®/Pentium® with LCD/CRT & 10/100Mbps Ethernet Single Board Computer. The JUKI-760E is a PICMG bus form factor board equipped with high performance K6®/Pentium® up to 500MHz Processor and advanced high performance multi-mode I/O, especially 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 a built-in DiskOnChip™ (DOC) Flash Disk socket for embedded application. A DOC Flash Disk is software compatible to hard disks, user can use DOS command to modify related settings without having to install any extra software utility.

JUKI-760E uses C&T 69000 HiQPro™ LCD/CRT chipset with 2MB EDO RAM display memory. The LCD interface can drive up to 1280 x 1024 resolution with 256 colors. It supports Mono, Color STN and TFT flat panel with 3.3V or 5V.

JUKI-760E uses the advanced Ali M1541/1543 Chipset which is 100% ISA/PCI compatible chipset with PCI 2.1 standard. In addition, this board provides three 168-pin sockets for RAM, maximum support up to 768MB in total. The DIMM module is 3.3 V SDRAM.

1.1   Specifications

- **Processor** : One Socket 7 supports Intel Pentium® MMX up to 233MHz, AMD K6®-3 up to 500MHz, 100/95/83.3/75/66/60MHz F.S.B.

- **Bus Architecture**: 32-bit PCI Bus and 16-bit ISA Bus Compatible

- **DMA channels** : 7

- **Interrupt levels** : 15

- **Chipset** : Ali M1541 supports up to 100MHz system bus and Ali M1543 super I/O controller.

- **L2 Cache Memory:** onboard pipelined Burst SRAM 512KB

- **System Memory** : three 168-pin DIMM sockets support 3.3V PC100 SDRAM, up to 768MB, ECC not supported.

- **LCD/CRT Controller :**
  - ✓ CHIPS 69000 64-bit flat panel controller
  - ✓ Built-in HiQColor™ Technology for super clean STN flat panel .
  - ✓ CRT Resolution up to:
        1280 x 1024, 256 color
        1024 x 768, 64K color
        800 x 600, 16M color
        Display Memory : 2MB EDORAM

- **10/100Mbps Ethernet Controller** :
  - ✓ Realtek RTL8100B IEEE802.3u 100BASE-TX standard
  - ✓ Dual Auto-sensing interface to 10Mbps or 100Mbps Network
  - ✓ RJ45 connector for 10BASE-T and 100BASE-TX
  - ✓ Full Duplex capability
  - ✓ Full Software driver support

- **On Board I/O:**
  - ✓ 1 Floppy Port (up to 2.88 MB, 3 mode)
  - ✓ 2 Serial Ports (2F8, 3F8)
  - ✓ 1 Parallel Port (ECP, EPP port)
  - ✓ FIR TX/RX Header (3E8)

- **USB port :** Support two USB ports for future expansion.

- **ISAPLUS^{TM}** : Designed to enhance the ISA bus drive capability

- **Enhanced PCI IDE interface (Ultra DMA/33)** : Supports two IDE hard disk drives.

- **E^{2}Key^{TM}** : A special designed 1Kbit EEPROM (non volatile memory) provided to accept read/ write data by customer's program. It is useful to store system ID, Password, Critical Data on the board.

- **Watch-dog timer** : Can be set to 1, 2, 10, 20, 110 or 220 seconds per period. Reset or NMI is generated when CPU does not periodically trigger the timer. Your program uses hex 043 and 443 to control the watch-dog and generate a system reset.

- **Flash Disk - DiskOnChip™ (optional)** : The Flash Disk provides software compatibility with hard disk, supports M-Systems. The built-in True FFS Transparent Flash Block Management and Space Reclamation will allow customers to use Flash Disk with DOS command, no need to install any extra software utility. DOC currently is available from 2MB to 144MB.

- **ATX Power Supply function.**

- **Power Consumption** : +5V/5A (MMX-233MHz, 32MB EDO RAM) +12V:170mA , -12V:20mA

- **Operating Humidity** : 5 ~ 95 % , non-condensing

- **Operating Temperature** : 0 ~ 55°C (CPU needs cooler)

1.2   Package Contents

In addition to this *User Manual*, the JUKI-760E package includes the following items:

- JUKI-760E Single Board Computer
- Serial & Parallel Ribbon Cable and Port Bracket
- FDD/HDD Cable Sets
- 6-pin Mini-Din to one 5-pin Mini-Din for Keyboard and one 6-pin Mini-Din for PS/2 Mouse Adapter Cable.
- one support disk contains of the needed driver

If any of these items is missing or damaged, please 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-760E. The layout of JUKI-760E is shown on the next page and the Unpacking Precautions that you should be careful with are described on the following page. Also included is the jumpers and switches setting for this board's configuration, such as: CPU type selection, system clock setting and Watchdog timer.

2.1   JUKI-760E 's Layout

< Please turn to the next page for layout diagram. >

● JUKI-760E 's Layout
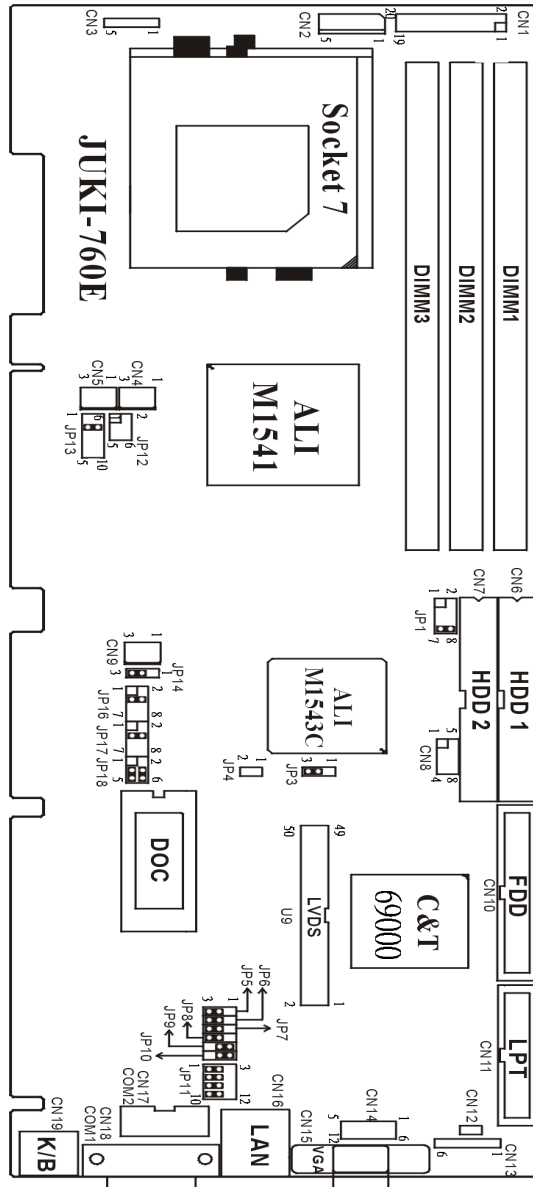
2.2 Unpacking Precautions

Some components on JUKI-760E SBC are very sensitive to static electric charges and can be damaged by a sudden rush of power. To protect it from unintended damage, be sure to follow these precautions:

- Ground yourself to remove any static charge before touching your JUKI-760E SBC. You can do this by using a grounded wrist strap at all times or by frequently touching any conducting materials that is connected to the ground.

- Handle your JUKI-760E SBC by its edges. Don't touch IC chips, leads or circuitry if not necessary.

- Do not plug any connector or jumper while the power is on.

- Do not put your JUKI-760E SBC unprotected on a flat surface because it has components on both sides.

⚠ WARNING ⚠
Incorrect replacement of battery will cause explosion. Replace the Lithium battery of the real-time clock only with the same or equivalent type part. Don't dispose of the used battery in fire. Dispose of used parts in accordance with your local regulations.

2.3   Setting the CPU of JUKI-760E
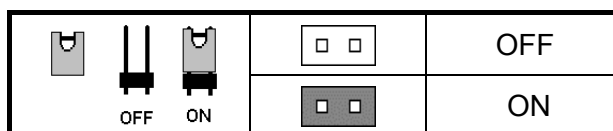
(OFF / ON)	□ □	OFF
	▣ ▣	ON

● **JP1 : CPU / PCI CLK SETTING**

CPU CLK	PCI CLK	JP 1			
		1-2	3-4	5-6	7-8
60MHz	30MHz	ON	ON	ON	ON
66MHz	33MHz	OFF	ON	ON	ON
75MHz	37MHz	OFF	OFF	ON	ON
83MHz	33MHz	OFF	ON	OFF	ON
95MHz	33MHz	ON	OFF	OFF	ON
100MHz	**33MHz**	**OFF**	**OFF**	**OFF**	**ON**

● **JP13 : CPU (V core) Voltage Selector**

VOLTAGE	1-6	2-7	3-8	4-9	5-10
3.5	ON	ON	ON	ON	OFF
3.4	OFF	ON	ON	ON	OFF
3.3	ON	OFF	ON	ON	OFF
3.2	OFF	OFF	ON	ON	OFF
3.1	ON	ON	OFF	ON	OFF
3.0	OFF	ON	OFF	ON	OFF
2.9	ON	OFF	OFF	ON	OFF
2.8	OFF	OFF	OFF	ON	OFF
2.7	ON	ON	ON	OFF	OFF
2.6	OFF	ON	ON	OFF	OFF
2.5	ON	OFF	ON	OFF	OFF
2.4	OFF	OFF	ON	OFF	OFF
2.3	ON	ON	OFF	OFF	OFF
2.2	**OFF**	**ON**	**OFF**	**OFF**	**OFF**
2.1	ON	OFF	OFF	OFF	OFF
2.0	OFF	OFF	OFF	OFF	OFF

● **JP12 : CPU MULTIPLIER SETTING**

MULTIPLIER	1-2	3-4	5-6
2x	ON	OFF	OFF
2.5x	ON	ON	OFF
3.0 x	OFF	ON	OFF
3.5 x	**OFF**	**OFF**	**OFF**
4.0 x	ON	OFF	ON
4.5 x	ON	ON	ON
5.0 x	OFF	ON	ON
5.5x	OFF	OFF	ON

Note:

Win95 is going to be unstable while running on all 350MHz and above K6-2 systems. If you use AMD K6-2/350MHz to run Win95, the message **'Windows protection error. You need to restart your computer'** *will appear very often. This is AMD CPU's problem. To solve this, you must download and run the program:* **amdk6upd.zip** *from AMD website.*
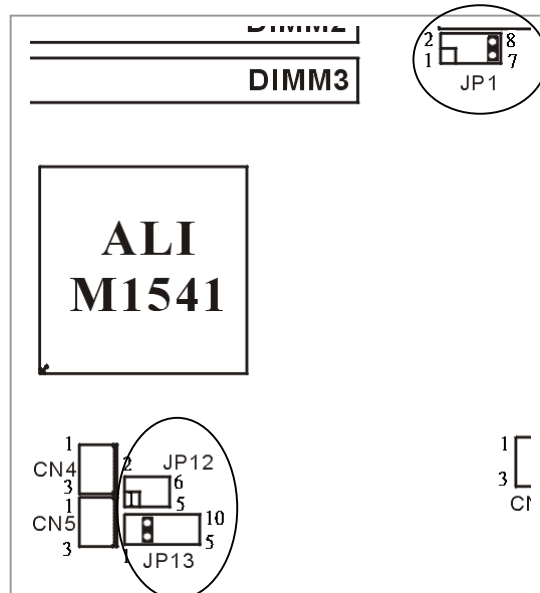
2.4　Voltage Setting for FLASH ROM

● **JP18 : Flash ROM Voltage Setting**

PIN	DESCRIPTION		MANUFACTURER
	VOLT.	SIZE	
1-3 , 2-4	+12V	1MB	INTEL 28F001-BX-T150
1-3 , 4-6	+12V	2MB	INTEL
3-5 , 4-6	**+5V**	**1MB/2MB**	**SST/WINBOND/29EE010**
1-3 , 4-6	+12V	1MB	MX28F 1000

2.5　LCD Voltage Setting

● **JP3 : LCD Voltage Setting**

PIN	DESCRIPTION
1-2	3.3V
2-3	**+5V**

Warning: *Wrong voltage setting may cause serious damage to your LCD display.*

2.6　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 the program operation is abnormal and will issue a reset signal to reboot or activate NMI to CPU. The Watch-Dog Timer is disable by reading port 043H.

● **JP14 : Watch-Dog Timer Type Setting**

PIN	DESCRIPTION
1-2	NMI
2-3	**RESET**
OFF	Disable WDT

● **JP16 : WDT Time-out Period**

PERIOD	1-2	3-4	5-6	7-8
1 sec.	OFF	OFF	ON	OFF
2 sec.	OFF	OFF	ON	ON
10 sec.	**OFF**	**ON**	**OFF**	**OFF**
20 sec.	OFF	ON	OFF	ON
110 sec.	ON	OFF	OFF	OFF
220 sec.	ON	OFF	OFF	ON

2.7 DiskOnChip™ Flash Disk

DOC is software compatible to hard disks. Its "plug and play" function is not only easy to use but also reliable.

● **JP17 : DOC Memory Address Setting**

PIN	ADDRESS
1-2	CE00H
3-4	**D600H**
5-6	DE00H
7-8	Don't Care
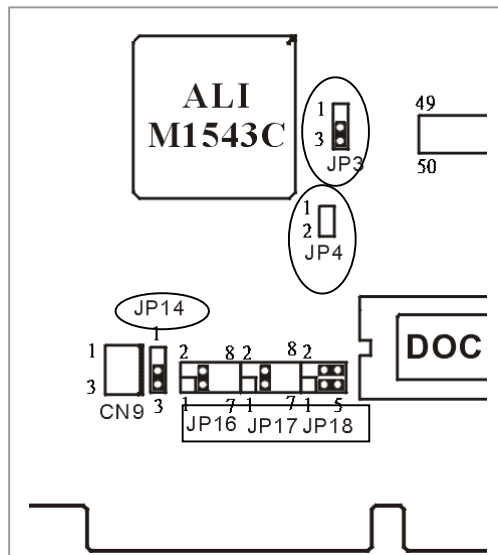
2.8   Clear CMOS Setup

If you forget the CMOS password, you can clear or reset it by closing the JP4 for about 3 seconds then set it back to normal operation by opening the JP4. After this action is done, the password will be cleared from your CMOS.

● **JP4 : Clear CMOS Setup**

PIN	DESCRIPTION
OFF	Normal Operation
ON	Clear CMOS

Note: If you are using an ATX power supply, the ATX-powerconnector should be disconnected from the motherboard for CMOS to be cleared.

2.9 RS232 / RS422 / RS485 Selector (COM2)

Through combination of JP5 and JP11, users can set COM2 as RS232, RS482 or RS485.

● **JP5 : RS422 / RS485 , RS232 Selector**

PIN	DESCRIPTION
1-2	RS422/RS485
2-3	RS232

● **JP11 : RS422 / RS232 Selector**

DESCRIPTION	PIN			
RS422/485	2-3	5-6	8-9	11-12
RS232	1-2	4-5	7-8	10-11

● **JP6 : Select the RTS signal to control/enable RS485 output driver. Please refer to the below table for this function.**

RTS	1	0
RS485 driver	output	input

JP6	DESCRIPTION
1-2	RTS Select
2-3	**RS-422**

2.10   RI and COM Port Voltage Selector

COM1

The RI pin of COM1 (CN18, pin#9) can be set to RI, +5V or +12V mode by setting JP7 and JP9.

● **JP7 : RI or DC Power Select**

PIN	DESCRIPTION
1-2	DC Power Select (connect to JP9)
2-3	**RI**

● **JP9 : is a DC Power Voltage Selector, combined with JP7**

PIN	DESCRIPTION
1-2	**+5V**
2-3	+12V

(Please refer to the next page for diagram illustration.)
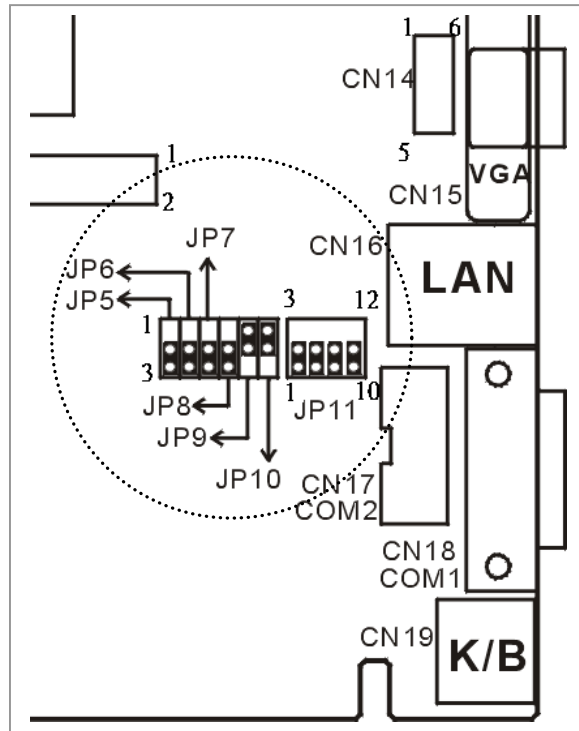
COM2
The RI pin of COM2 (CN17, pin#8) can be set to RI, +5V or +12V mode by setting JP8 and JP10

- **JP8 : RI or DC Power Select**

PIN	DESCRIPTION
1-2	DC Power Select (connect to JP10)
2-3	**RI**

- **JP10 : is a DC Power Voltage Selector, combined with JP8**

PIN	DESCRIPTION
1-2	**+5V**
2-3	+12V

Note : When the output is set to 12V, the board should have +12V input too from power supply.

Chapter 3. Connection

This chapter describes how to connect peripherals, switches and indicators to the JUKI-760E board.

3.1   Floppy Disk Drive Connector

JUKI-760E board is equipped with a 34-pin daisy-chain driver connector cable.

● **CN10 : FDD 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-760E IDE controller.

● **CN6/CN7 : Primary/Secondary IDE Interface Connector**

PIN	DESCRIPTION	PIN	DESCRIPTION
1	RESET#	2	GND
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	GND	20	N/C
21	IDE DRQ	22	GND
23	IOW#	24	GND
25	IOR#	26	GND
27	IDE CHRDY	28	GND
29	IDE DACK	30	GND. *DEFAULT*
31	INTERRUPT	32	N/C
33	SA 1	34	N/C
35	SA 0	36	SA 2
37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GND
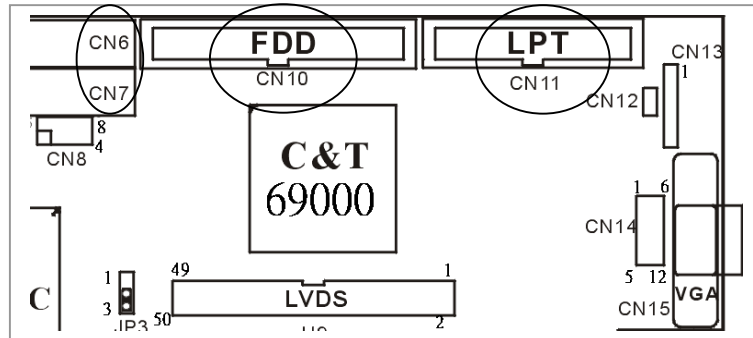
3.3 Parallel Port

This port is usually connected to a printer. The JUKI-760E includes an on-board parallel port, accessed through a 26-pin flat-cable to connector CN11.

● **CN11 : 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	GND
19	GND	20	GND
21	GND	22	GND
23	GND	24	GND
25	GND	26	N/C

3.4   Serial Ports

The JUKI-760E offers two high speed NS16C550 compatible UARTs with Read/Receive 16 byte FIFO serial ports (COMA/COMB).

● **CN18 : Serial Port 9-pin D-sub 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)
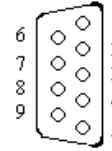
● **CN17 : Serial Port 2x5 pin header Connector (COM2)**

PIN	DESCRIPTION	PIN	DESCRIPTION
1	DCD /TX-	6	DSR /RX+
2	RXD /TX-	7	RTS /RX-
3	TXD	8	CTS
4	DTR	9	RI
5	GND	10	N/C
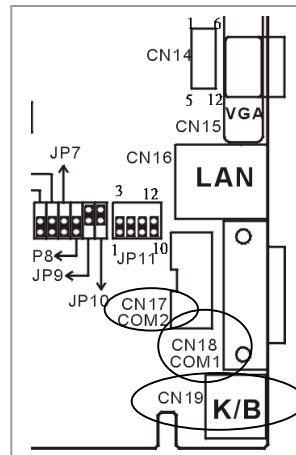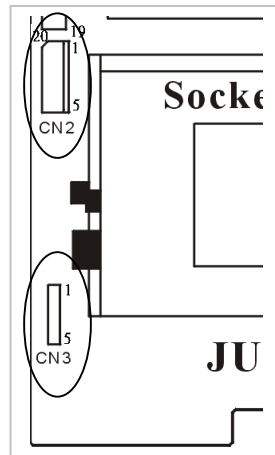
3.5   Keyboard/Mouse Connector

The JUKI-760E provides one external keyboard, one external mouse and one PS/2 keyboard & mouse connectors.

- **CN2 : 5-pin Header Ext. Keyboard Connector**

PIN	DESCRIPTION
1	KB CLOCK
2	KB DATA
3	N/C
4	GND
5	+5V
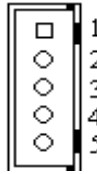
- **CN19 : 6-pin Mini-DIN PS/2 Keyboard Connector**

PIN	DESCRIPTION
1	KB DATA
2	MS DATA
3	GND
4	+5V
5	KB CLOCK
6	MS CLOCK
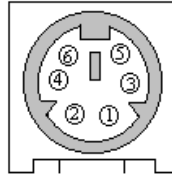
- **CN3 : Ext. PS/2 Mouse 5-pin Header Connector**

PIN	DESCRIPTION
1	MS DATA
2	N/C
3	GND
4	+5V
5	MS CLOCK
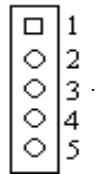
3.6 External Switches and Indicators

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

● **CN1 : Multi Panel**

PIN	DESCRIPTION	PIN	DESCRIPTION
1.	SPEAKER	2	VCC
3.	N/C	4	N/C
5.	N/C	6	GND
7.	+5V	8	KEYLOCK
9.	RESET SW	10	GND
11.	GND	12	GND
13.	IDE LED	14	N/C
15.	+5V	16	ATX POWER CONTROL
17.	ATX POWER BUTTON	18	ATX 5VSB
19.	GND	20	ATX 5VSB
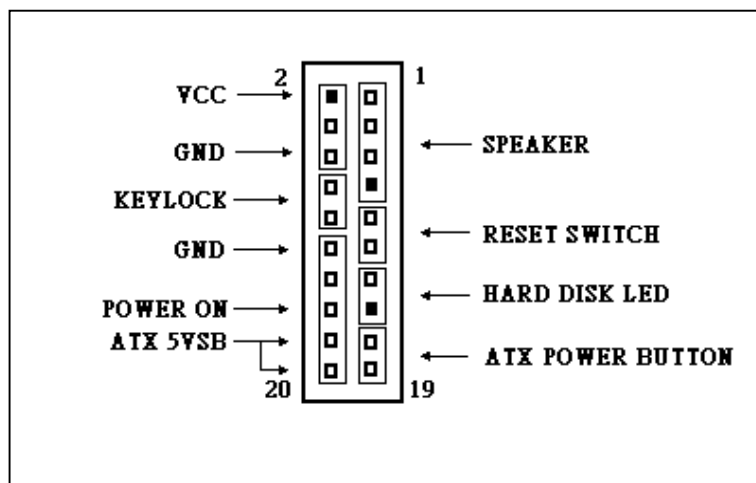
3.7 USB Port Connector

The JUKI-760E has two built-in USB ports for the future new I/O bus expansion.

● **CN8: 2 USB Connectors**

PIN	USB0	PIN	USB1
1	+5V	5	GND
2	SBD0-	6	SBD1+
3	SBD0+	7	SBD1-
4	GND	8	+5V

3.8 IrDA Infrared Interface Port

JUKI-760E has a built-in IrDA port which supports Serial Infrared (SIR) or Amplitude Shift Keyed IR (ASKIR) interface. If you want to use the IrDA port, you will have to configure the SIR or ASKIR model in BIOS's Peripheral Setup's COM3.

● **CN13 : IrDA Connector**

PIN	DESCRIPTION
1	VCC
2	N/C
3	IR-RX
4	GND
5	IR-TX
6	N/C
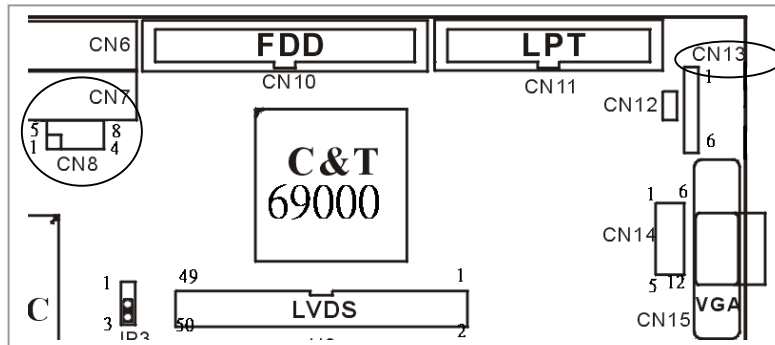
3.9 VGA Connector

The built-in 15-pin VGA connector can be connected directly to your monochrome CRT monitor as well as high resolution color CRT monitor.

● **CN15 : 15-pin Female VGA Connector**

PIN	DESCRIPTION	PIN	DESCRIPTION
1	RED	9	N/C
2	GREEN	10	GND
3	BLUE	11	N/C
4	N/C	12	DDC DATA
5	GND	13	H-SYNC
6	GND	14	V-SYNC
7	GND	15	DDC CLK
8	GND		
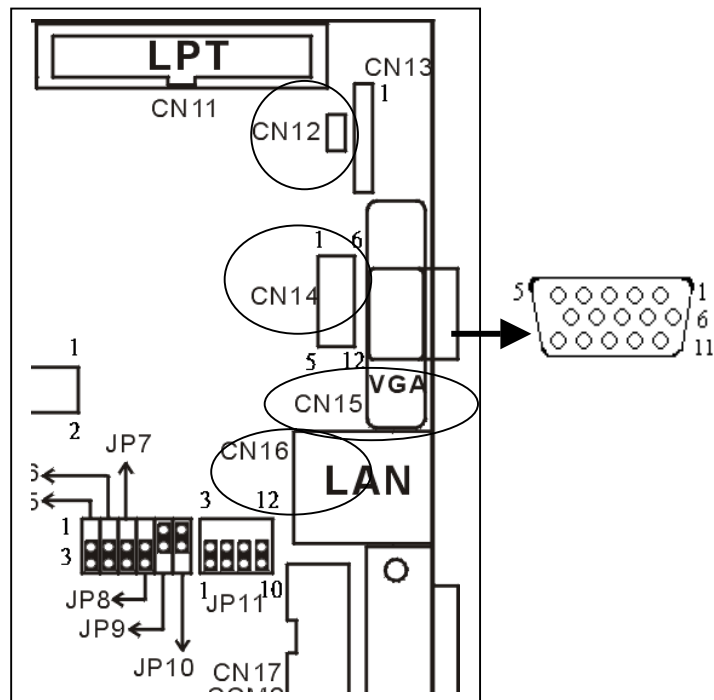
PIN	DESCRIPTION	PIN	DESCRIPTION
1	RED	2	GREEN
3	BLUE	4	HSYNC
5	VSYNC	6	DDDA*
7	DDCK*	8	GROUND
9	GROUND	10	GROUND

3.10   LAN RJ45 Connector

JUKI-760E is equipped with a built-in 10/100Mbps Ethernet Controller. You can connect it to your LAN through RJ45 LAN connector. Please refer to the pin assignments listed below:

● **CN16 : LAN RJ45 Connector**

PIN	DESCRIPTION	PIN	DESCRIPTION
1	TX+	5.	N/C
2	TX-	6.	RX-
3.	RX+	7.	N/C
4.	N/C	8.	N/C

● **CN12 : LED Connector for LAN**

PIN	DESCRIPTION
1	VCC
2	LAN ACT.

● **LED pins description**

PIN	DESCRIPTION
LED0	TX/RX
LED1	LINK 100
LED2	LINK 10

3.11 Fan Connector

The JUKI-760E provides one CPU cooling fan connector and two system fan connectors. These connectors can supply 12V/500mA to the cooling fan. The connector has a "rotation" pin which retrieves fan's rotation signal to the system, so that system BIOS knows the fan speed. Please note that only specified fan offers rotation signal.

- **CN4 : CPU Fan Connector**
- **CN5 : System1 Fan Connector**
- **CN9 : System2 Fan Connector**

PIN	DESCRIPTION
1	Fan Sensor
2	+12V
3	GND
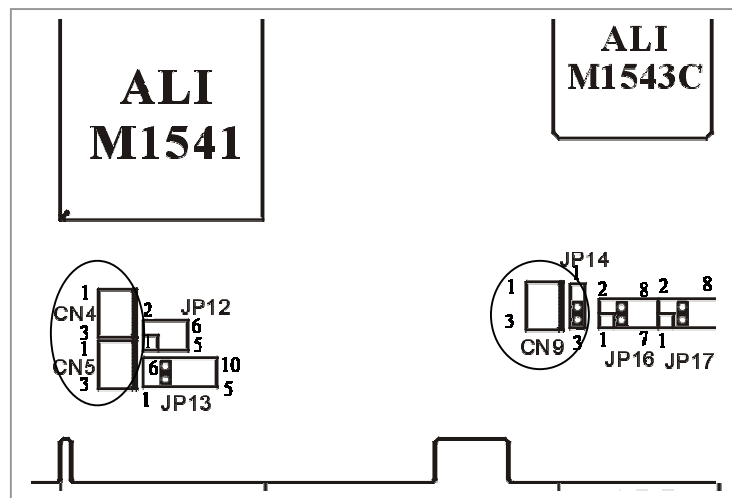
3.12   LCD Connector

● **U9: LCD Interface Connector**

PIN	DESCRIPTION	PIN	DESCRIPTION
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	PLCD	30	PLCD
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
45	FPVEE	46	LP
47	GND	48	GND
49	+12V	50	+12V
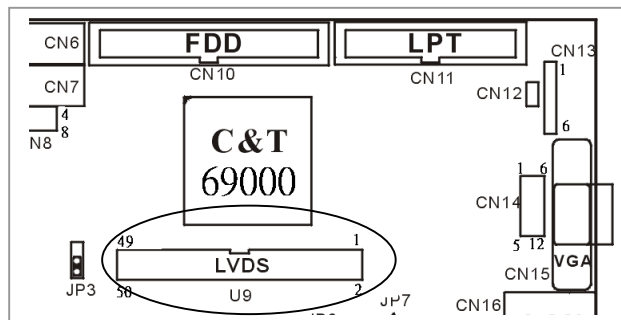
Chapter 4. AMI BIOS Setup

The JUKI-760E uses the AMI PCI/ISA BIOS for system configuration. The AMI 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 you turn on the power button, the BIOS will enter the Power-On-Self-Test routines. These routines will be executed for system test and initialization and system configuration verification.

" Hit DEL if you want to run SETUP"

To access AMI PCI/ISA BIOS Setup program, press <Del> key. The following screen will be displayed at this time.

```
    AMIBIOS HIFLEX SETUP UTILITY – VERSION 1.20
    (C)1998 American Megatrends, Inc. All Rights Reserved

                   Standard CMOS Setup
                   Advanced CMOS Setup
                   Advanced Chipset Setup
                   Power Management Setup
                   PCI / Plug and Play Setup
                   Peripheral Setup
                   Auto-Detect Hard Disks
                   Change User Password
                   Change Supervisor Password
              Auto Configuration with Optimal Settings
              Auto Configuration with Fail Safe Settings
                   Save Settings and Exit
                   Exit Without Saving



   Standard CMOS setup for changing time, date, hard disk type, etc.
        ESC:Exit  ↑↓:Sel  F2/F3:Color  F10:Save & Exit
```

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 setting. Please refer to the following screen for this setup:

```
                AMIBIOS SETUP - STANDARD CMOS SETUP
           (C)1998 American Megatrends, Inc. All Rights Reserved

Date (mm/dd/yyyy): Fri Jul 09,1999            Base Memory: 0 KB
Time (hh/mm/ss)  : 17:07:11                   Extd Memory: 0 MB

Floppy Drive A:    1.44 MB 3½
Floppy Drive B:    Not Installed
                                          LBA  Blk  PIO  32Bit
            Type        Size  Cyln  Head WPcom Sec Mode Mode Mode Mode
Pri Master : Auto                                         On
Pri Slave  : Auto                                         On
Sec Master : Auto                                         On
Sec Slave  : Auto                                         On

Boot Sector Virus Protection    Disabled

    Available Options:                    ESC:Exit  ↑↓:Sel
      Not Installed                       PgUp/PgDn:Modify
      360  KB 5¼                          F2/F3:Color
      1.2  MB 5¼
      720  KB 3½
    ▶ 1.44 MB 3½
```

To set the Date, for example, press either the arrow or <Enter> button on your keyboard to select one of the fields (Months, Date or Year) then press either <PgUp> or <PgDn> to set it to the current Months, Date and Year. Follow the same steps for Time setting.

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 Auto-Detect Hard Disk option in the main menu; the computer will automatically detect HDD specifications.
3.   Enter specifications manually through "User" option.

4.3   Advanced CMOS Setup

Advanced CMOS Setup is designed for tuning the best performance out of the JUKI-760E board. For normal operation, customers don't have to change any default setting. The default setting is pre-set for most reliable operation.

The following screen will be displayed if you select Advanced CMOS Setup:

```
                   AMIBIOS SETUP - ADVANCED CMOS SETUP
              (C)1998 American Megatrends, Inc. All Rights Reserved

  1st Boot Device            Floppy          Available Options:
  2nd Boot Device            IDE-0             Disabled
  3rd Boot Device            CDROM             IDE-0
  Try Other Boot Devices     Yes               IDE-1
  Quick Boot                 Enabled           IDE-2
  BootUp Num-Lock            On                IDE-3
  Floppy Drive Swap          Disabled        ▶ Floppy
  Floppy Drive Seek          Enabled           LS-120
  Floppy Access Control      Normal            ATAPI ZIP
  HDD Access Control         Normal            CDROM
  PS/2 Mouse Support         Enabled           SCSI
  System Keyboard            Absent            NETWORK
  Password Check             Setup
  Boot To OS/2               No
  External Cache             Enabled
  System BIOS Cacheable      Enabled
  Video BIOS Shadow          Enabled
  C800,16k Shadow            Disabled        ESC:Exit  ↑↓:Sel
  CC00,16k Shadow            Disabled        PgUp/PgDn:Modify
  D000,16k Shadow            Disabled        F2/F3:Color
```

- **1st, 2nd, 3rd Boot Device** > To define the sequence of boot drives after routine check up completes. If the 1st Boot Device fails, BIOS will attempt to boot from the 2nd or the 3rd device. The Optimal and Fail-Safe default settings are C:,A:,CDROM.

- **Try Other Boot Devices** > BIOS will try to boot from any other available device in the system if the 1st, 2nd and 3rd device fails to boot.

- **Quick Boot** > *Enabled*: this will enable the BIOS to boot quickly when you turn on your computer. The BIOS will only check the first 1MB of the system memory.

- **Quick Boot** > *Disabled:* BIOS will test all system memory when it boots up. It will spend about 40 seconds until it receives a Ready signal from the HDD. It will also wait for you to press the <Del> key or not.

- **BootUp Num-Lock** > To turn on/off the Num-Lock option on a enhanced keyboard when you boot. If you turn it on, the arrow keys on the numeric keypad can be used just as the other set of arrow keys on the keyboard and vice versa.

- **Floppy Drive Swap >** This function enables you to swap floppy disk drives via software or without moving the hardware.

- **Floppy Drive Seek >** When this option is turned Enabled, BIOS will perform a Seek command on floppy drive A: before boot-up.

- **Floppy Access Control** > To define the read/write access that is set while booting from a floppy drive.

- **Hard Disk Access Control** > To define the read/write access that is set while booting from a HDD.

- **PS/2 Mouse Support** > This is to confirm whether or not a PS/2 mouse is supported.

- **S.M.A.R.T. for Hard Disks** > Allow BIOS to use the **S**ystem **Ma**nagement and **R**eporting **T**echnologies protocol for reporting server system information on a network

- **System Keyboard** > To configure the keyboard. If you set it Absent, BIOS will not report keyboard errors.

- **Primary Display** > To define the type of display monitor of the system. 'Absent' option is used for network file servers.

- **Password Check** > To define if a password is necessary or not to access BIOS setup.

- **Boot to OS/2** > If you run the OS/2 operating system, this option must be set to yes. In other words, you permit

BIOS to run properly if OS/2 or any other OS that does not support Plug and Play is found in your computer.

- **External Cache** > To enable or disable the external cache.

- **System BIOS Cacheable** > To define whether or not the memory segment FOOOH can be read from or written to cache memory. Setting it to Enabled will give faster execution in your system.

- **XXXX, 16k Shadow** > ROM Shadow is a technique in which BIOS code is copied from slower ROM to faster RAM. If you enable it then the BIOS will be executed from RAM. Each option allows 16KB segment to be shadowed to the RAM.

4.4   Advanced Chipset Setup

Setup functions in this section are mostly related to the Chipset. These options are used to change Chipset's registers. Please carefully change any default setting, otherwise the system will become unstable.

```
              AMIBIOS SETUP - ADVANCED CHIPSET SETUP
           (C)1998 American Megatrends, Inc. All Rights Reserved

 SDRAM CAS Latency           Auto          Available Options:
 SDRAM Burst X-1-1-1-1-1-1-1 Enabled          3
 DRAM Timing                 Normal           2
 Pipe Function               Enabled        ▶ Auto
 SDRAM RASJ Precharge Time   4T
 SDRAM RASJ Cycle Time       9T
 SDRAM RASJ to CAS delay     4 CLKs
 Gated Clock                 Disabled
 Graphic Aperture Size       64MB
 Primary Frame Buffer        Enabled
 UGA Frame Buffer            Enabled
     Data Merge              Disabled
 Passive Release             Enabled
 ISA Line Buffer             Enabled
 Delay Transaction           Disabled
 AT Bus Clock                Auto
 Memory Hole                 Disabled
                                           ESC:Exit  ↑↓:Sel
                                           PgUp/PgDn:Modify
                                           F2/F3:Color
```

- **SDRAM CAS# Latency >** To specify CAS latency timing, which means when memory receives CAS signal, how many clock must the memory wait before it starts to read or write data.

- **SDRAM Burst X-1-1-1-1-1-1-1 >** To enable or disable Burst mode to write or read the data in SDRAM

- **DRAM Timing >** To specify the timing mode of DRAM. Options: Normal, Fast, Slow.

- **Pipe function >** To enable or disable the pipe function.

- **SDRAM RASJ Precharge Time >** This option specifies the length of time for Row Address Strobe form SDRAM to precharge. Options: 2T, 3T, 4T, 5T.

- **SDRAM RASJ Cycle Time >** To choose the time cycle of SDRAM RASJ. Options: 7T, 8T, 9T, 10T.

- **SDRAM RASJ to CAS Delay >** When CPU reads/writes data from memory, it has to send RAS signal first and then send CAS signal. This option is used to specify the delay between these signals. Options: 3CLKs, 4CLKs.

- **Gated Clock >** To enable or disable the control of the gated time and wakeup time of the DRAM sequencer and the DRAM controller.

- **Graphic Aperture Size >** To define the size of Graphic Aperture. Options: 4MB, 8MB,…, 256MB.

- **Primary Frame Buffer >** To enable or disable the buffer for primary frame

- **VGA Frame Buffer >** To specify whether or not a caching of the video RAM is allowed. *Enabled* will give you better system performance.

- **Data Merge >** If enabled, only consecutive linear address can be merged.

- **ISA Line Buffer >** To enable or disable the buffer for ISA Line.

- **Delayed Transaction >** To enable or disable the support for delay transaction for PCI specification 2.1.

- **AT Bus Clock >** To specify the I/O bus clock setting.

- **Memory Hole :** To specify the location of a memory hole in the CMOS RAM. 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.

4.5   Power Management Setup

```
                  AMIBIOS SETUP - POWER MANAGEMENT SETUP
             (C)1998 American Megatrends, Inc. All Rights Reserved

Power Management/APM          Disabled        Available Options:
Green Monitor Power State     Off              ▶ Disabled
Video Power Down Mode         Disabled           Enabled
Hard Disk Power Down Mode     Disabled
Standby Time Out              Disabled
Suspend Time Out              Disabled
  Monitor Parallel Port       Yes
  Monitor Serial Port         Yes
  Monitor Floppy              Yes
  Monitor VGA                 No
  Monitor Audio               No
  Monitor Pri-HDD             Yes
  Monitor Sec-HDD             No
Power Button Function         Suspend
Ring Resume From Soft Off     Disabled
RTC Alarm Resume              Disabled
  RTC Alarm Date              Disabled
  RTC Alarm Hour              12            ESC:Exit  ↑↓:Sel
  RTC Alarm Minute            30            PgUp/PgDn:Modify
  RTC Alarm Second            30            F2/F3:Color
```

● **Power Management/APM >** To enable or disable the Advanced Power Management feature.

● **Green Monitor Power State >** To specify the power state of the monitor after the specified period of display-idle has ended.

● **Video Power Down Mode >**To specify the power state of the VESA VGA video subsystem after the specified period of display-idle has ended.

● **Hard Disk Power Down Mode >** To specify the power state of the hard disk after the specified period of hard drive-idle has ended.

● **Standby Time Out >** To specify the length of the system-idle period while the system is in full power on state. After this period of time has ended, the system will go into Standby state.

- **Suspend Time Out >** To specify the length of the system-idle period while the system is in Standby state. After this period of time has ended, the system will go into Suspend state.

- **Monitor XXX Port >** Enable this function will allow IRQ input to be monitored, that is, inactivate while entering Auot_mode/SMI_mode and activate while entering Normal_mode.

- **Power Button Function >** To specify how the power button mounted externally on the chassis is used.

- **RTC Alarm Date >** If enabled, the system will wakeup from suspend time according to the set time.

4.6   PCI / PLUG AND PLAY Setup

This setup help users handle JUKI-760E board's PCI function. All PCI bus slots on the system use INTA#, therefore all installed PCI slots must be set.

```
              AMIBIOS SETUP - PCI / PLUG AND PLAY SETUP
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Plug and Play Aware O/S        No          Available Options:
Clear NVRAM on Every Boot      No          ▶ No
PCI Latency Timer (PCI Clocks) 64            Yes
PCI VGA Palette Snoop          Disabled
OffBoard PCI IDE Card          Auto
OffBoard PCI IDE Primary IRQ   Disabled
OffBoard PCI IDE Secondary IRQ Disabled
Assign IRQ to PCI VGA          Yes
PCI Slot1 IRQ Priority         Auto
PCI Slot2 IRQ Priority         Auto
PCI Slot3 IRQ Priority         Auto
PCI Slot4 IRQ Priority         Auto
DMA Channel 0                  PnP
DMA Channel 1                  PnP
DMA Channel 3                  PnP
DMA Channel 5                  PnP
DMA Channel 6                  PnP
DMA Channel 7                  PnP         ESC:Exit  ↑↓:Sel
IRQ3                           ISA/EISA     PgUp/PgDn:Modify
IRQ4                           ISA/EISA     F2/F3:Color
```

- **Plug and Play Aware O/S >** Yes or No
  When PNP OS is installed, interrupts will 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.

- **Clear NVRAM on Every Boot >** To specify whether BIOS has to clear NVRAM on every boot or not.

- **PCI Latency Timer (PCI Clocks) >** To define the latency timing (PCI clock) for all PCI devices on the PCI bus.

- **PCI VGA Palette Snoop >** This option is useful only for system with more than one VGA devices connected to it through different bus (one PCI and one ISA). To enable those various VGA devices to handle signal from the CPU on each set of palette registers of every video devices, it must be set *Enabled*.

- **Offboard PCI IDE Card >** To specify if an offboard PCI IDE card is installed in your computer or not. You must specify the slot number on the board which will be used for the card.

- **Offboard PCI IDE Primary (/Secondary) IRQ >** To specify the PCI interrupt that is assigned to the Primary (/Secondary) IDE channel on the offboard PCI IDE controller.

- **Allocate IRQ to PCI VGA >** To allocate IRQ to PCI VGA, answer Yes and vice versa.

- **PCI Slot (1,2,3,4) IRQ Priority >** To specify the IRQ priority to be used by the PCI devices on slot 1 to 4.

- **DMA Channel (0,1,3,5,6,7) >** To indicate whether or not the DMA channel is assigned for a PnP or ISA card.

- **IRQ (3,4,5,7,9,10,11,14,15) >** To assign the displayed IRQ to be used by a legacy ISA adapter card. The settings are ISA/EISA or PCI/PnP. It is recommended to assign at least 4 IRQ to PCI/PnP.

4.7   Peripheral Setup

This setup is working mostly on Chipset M1543C with super I/O. The options are used to change the Chipset's registers. Please be careful while making any changes in the default setting so as to meet your application's needs.

```
              AMIBIOS SETUP - PERIPHERAL SETUP
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OnBoard FDC                  Enabled          Available Options:
OnBoard Serial Port1         3F8h/COM1           Auto
OnBoard Serial Port2         2F8h/COM2           Disabled
  Serial Port2 Mode          Normal           ▶ Enabled
    IR Half-Duplex Time-Out  N/A
OnBoard Serial Port3         N/A
  Serial Port3 Mode          N/A
  Serial Port3 IRQ           N/A
  Serial Port3 DMA           N/A
    IR Transceiver Module Type  N/A
    IR Half-Duplex Time-Out  N/A
OnBoard Parallel Port        378h
  Parallel Port Mode         Normal
    EPP Version              N/A
  Parallel Port IRQ          7
  Parallel Port DMA Channel  N/A
LCD CRT Selection            Both
LCD Type                     #4 800x600 STN   ESC:Exit  ↑↓:Sel
OnBoard IDE                  Both             PgUp/PgDn:Modify
                                              F2/F3:Color
```

- **Onboard FDC >** To enable the FDC on your board. If you set it Auto, the BIOS will decide if the FDC should be enabled, automatically.

- **Onboard Serial Port 1 (/2) >** To specify the I/O port address of the serial port 1(/2). If you set it Auto, the BIOS will decide the correct I/O port address, automatically.

- **Serial Port2 Mode >** To specify the mode of serial port 2.

- **IR Half-Duplex Mode >** To specify the mode of IR device that is connected to the IR port.

- **Onboard Parallel Port >** To specify the I/O port address of the parallel port.

- **Parallel Port Mode >** To specify the mode of parallel port. The options are:
  - ✓ *Normal* (normal parallel port mode),
  - ✓ *Bi-Dir* (supports bidirectional transfer),
  - ✓ *EPP* (supports devices that comply with the Enhanced Parallel Port specification),
  - ✓ *ECP* (supports devices that comply with the Extended Capabilities Port).

- **Parallel Port IRQ >** To assign certain IRQ to the parallel port.

- **Parallel Port DMA Channel >** Available only if the parallel port mode is ECP.

- **LCD CRT Selection >** To specify the display panel type that is connected to the system.

- **LCD Type >** To choose LCD type that is connected to the system. Please refer to the LCD panel data sheet/specification for the LCD type (TFT or STN, etc) and resolution. The following is a list of available LCD panels:

#1	1024	x	768	STN
#2	1280	x	1024	TFT
#3	640	x	480	STN
#4	800	x	600	STN
#5	640	x	480	TFT
#6	640	x	480	18bit
#7	1024	x	768	TFT
#8	800	x	600	TFT
#9	800	x	600	TFT
#10	800	x	600	TFT
#11	800	x	600	STN
#12	800	x	600	STN
#13	1024	x	768	TFT
#14	1280	x	024	STN
#15	1024	x	600	STN
#16	1024	x	600	TFT

- **Onboard IDE >** To define which on-board IDE controller channel(s) to be used. Options: Primary, Secondary, Both and Disabled.

4.8　Auto-Detect Hard Disk

This option detects the parameters of an IDE hard disk drive (HDD sector, cylinder, head, etc) automatically and will put the parameters into the Standard CMOS Setup screen. Up to 4 IDE drives can be detected and the parameters will be listed in the box. Press <Y> if you accept these parameters. Press <N> to skip the next IDE drives.

Note: If your IDE HDD was formatted in previous older system, incorrect parameters may be detected. In this case, you need to enter the correct parameters manually or low-level format the disk.

4.9 Change Supervisor / User Password

```
        AMIBIOS HIFLEX SETUP UTILITY - VERSION 1.20
        (C)1998 American Megatrends, Inc. All Rights Reserved


                    Standard CMOS Setup
                    Advanced CMOS Setup
                   Advanced Chipset Setup
                   Power Management Setup
                   PCI / Plug and Play Setup

              ┌──────────────────────────────┐
              │                              │
              │  Enter new supervisor password:│
              │                              │
              └──────────────────────────────┘

            Auto Configuration with Fail Safe Settings
                    Save Settings and Exit
                    Exit Without Saving




                  Change the supervisor password
          ESC:Exit  ↑↓:Sel  F2/F3:Color  F10:Save & Exit
```

This option sets a password that is used to protect your system and Setup Utility. Supervisor Password has higher priority than User Password. Once you setup password, the system will ask you to key-in password every time you enter the BIOS SETUP. If you enter BIOS SETUP with Supervisor Password, you can access every setup option on the main menu but if you enter with User Password you can only choose three setup options (USER PASSWORD, SAVE SETTING AND EXIT and EXIT WITHOUT SAVING). To disable these passwords, enter the BIOS SETUP menu with Supervisor Password and then just press the <Enter> key instead of entering a new password when the 'Enter Password' prompt pop-up.

4.10 Auto Configuration with Optimal Settings

This option lets you load the *Optimal* default settings. These settings are *best-case values* which will provide the best performance. Whenever your CMOS RAM is damaged, this Optimal settings will be loaded automatically.

```
          AMIBIOS HIFLEX SETUP UTILITY - VERSION 1.20
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                     Standard CMOS Setup
                     Advanced CMOS Setup
                    Advanced Chipset Setup
                    Power Management Setup
                    PCI / Plug and Play Setup

           ┌──────────────────────────────────────────┐
           │                                          │
           │   Load high performance settings (Y/N) ? Y │
           │                                          │
           └──────────────────────────────────────────┘

               Auto Configuration with Fail Safe Settings
                       Save Settings and Exit
                       Exit Without Saving


          Load configuration settings giving highest performance
              ESC:Exit  ↑↓:Sel  F2/F3:Color  F10:Save & Exit
```

4.11 Auto Configuration with Fail Save Settings

This option lets you load the *Fail Safe* default settings when something happens to your computer results in abnormal booting. These settings are not the most optimal settings but the most stable.

```
          AMIBIOS HIFLEX SETUP UTILITY - VERSION 1.20
         (C)1998 American Megatrends, Inc. All Rights Reserved

                     Standard CMOS Setup
                     Advanced CMOS Setup
                     Advanced Chipset Setup
                     Power Management Setup
                   PCI / Plug and Play Setup

              ┌──────────────────────────────────┐
              │ Load failsafe settings (Y/N) ? Y  │
              └──────────────────────────────────┘
            Au                                     gs
            Auto Configuration with Fail Safe Settings
                     Save Settings and Exit
                     Exit Without Saving



                 Load failsafe configuration settings
            ESC:Exit  ↑↓:Sel  F2/F3:Color  F10:Save & Exit
```

4.12 Save Settings and Exit

Select this option when you finish setting all the parameters and want to save them into the CMOS. Simply press <Enter> key and all the configuration changes will be saved.

4.13 Exit Without Saving

Select this option if you want to exit Setup without saving the changes that you made. Simply press <Enter> key and you will exit BIOS SETUP without saving changes.

Chapter 5. E^2 Key™ Function

The JUKI-760E provides an outstanding E^{2}KEY™ function for system integrator. Based on the E^{2}KEY™, you store freely the ID Code, Password or Critical Data in the 1Kbit EEPROM. Because the EEPROM is nonvolatile memory, you don't have to worry about loosing very important data.

In fact, the E^{2}KEY™ is based on a 1Kbit EEPROM which is configured to 64 words(from 0 to 63) so you could access (read or write) each word at any time.

When you start to use the E^{2}KEY™ please look for the utility found in the package. The software utility will include the following four files:

   README.DOC
   E2KEY.OBJ
   EKEYDEMO.C
   EKEYDEMO.EXE.

The E2KEY.OBJ provides two library functions for user to integrate their application with E^{2}KEY™ function. These library **(read_e2key and write_e2key)** are written and compiled in C language. Please check the following statement, then you will know exactly how to use it.

unsigned int read_e2key(unsigned int address)
/* This function will return the E^{2}KEY™'s data at address. The address range is from 0 to 63. Return data is one word,16 bits

*/**void write_e2key(unsigned int address,unsigned data)**
/* This function will write the given data to E^{2}KEY™ at certain address. The address range is from 0 to 63. The data value is from 0 to 0xffff. */

For quick know how, please refer to the included EKEYDEMO.C code before you start.

Also, please note that the E^{2}KEY™ function is based on whether or not the parallel port is working so you should enable JUKI-760E's parallel port first nor this function.

Appendix A. Watch-Dog 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.

Two I/O ports control the WatchDog Timer :.

| 443 (hex) | Read | Enable to refresh the WatchDog Timer. |
| 843 (hex) | Read | Disable the WatchDog Timer. |

To enable the WatchDog 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 the CPU or cause a NMI, depending on the setting of JP14. To ensure that this reset condition does not occur, the WatchDog Timer must be periodically refreshed by reading the same I/O port 433H. This must be done within the time-out period that is selected by jumper group JP16.

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 WatchDog Timer, otherwise the system will reset.

Appendix B. ATX Power Supply

The following note and picture show how to connect ATX Power Supply to the backplanes and SBC card.

Please disconnect the AC cord of the Power Supply from the AC source to prevent sudden electric surge to the board.

JUKI-760E (through Power Button & +5VSB):
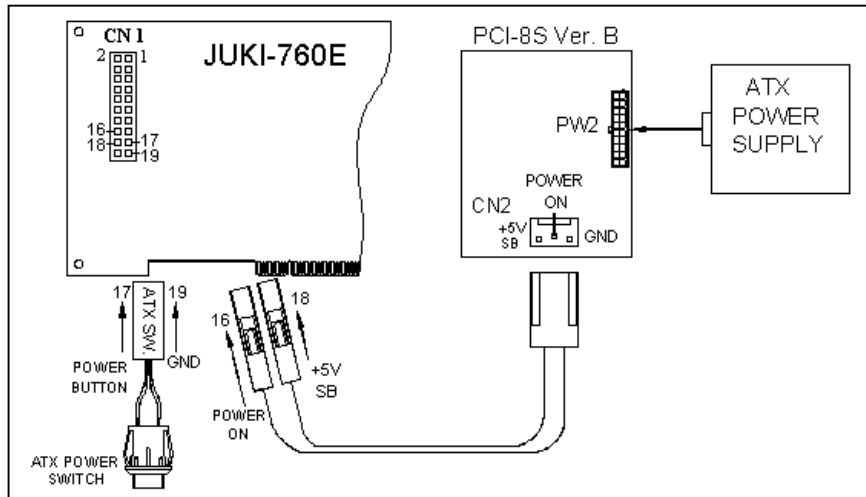
Connect the ATX power supply switch to pin 17 (power button) and pin 19 (GND) of CN1 (multi panel) on the board.

If you wish to turn off the power supply, please press ATX power switch button down for about 4 sec. To turn ON the system, just push the button once without holding it down.

Appendix C. I/O Information

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 (non-maskable interrupt) 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	
2E8-2EF	
2F8-2FF	Serial Port 2
300-31F	Prototype Card
360-36F	Reserved
378-37F	Parallel Printer Port 1 (LPT1)
3B0-3BF	Monochrome Display and Printer Adapter
3C0-3CF	Reserved
3D0-3DF	Color /Graphics Monitor Adapter
3E8-3EF	IR Port
3F0-3F7	Diskette Controller
3F8-3FF	Serial Port 1
443	Watch Dog Timer Enable
843	Watch Dog Timer Disable

1st MB Memory Address Map

Memory Address	Description
00000-9FFFF	System Memory
A0000-BFFFF	VGA Buffer
C0000-C7FFF	VGA Bios
*D6000-DDFFF	DOC 2000
F0000-FFFFF	System BIOS
1000000-	Extend BIOS

IRQ Mapping Chart

IRQ0	System Timer	IRQ8	RTC Clock
IRQ1	Keyboard	IRQ9	Unused
IRQ2	Cascade to IRQ Controller	IRQ10	LAN
IRQ3	COM2	IRQ11	USB
IRQ4	COM1	IRQ12	PS/2 mouse
IRQ5	Unused	IRQ13	FPU
IRQ6	FDC	IRQ14	Primary IDE
IRQ7	Printer (LPT1)	IRQ15	Secondary IDE

DMA Channel Assignments

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

Appendix D.
AMD-K6® Processor Voltage

CPU Type	Model	V-core	Typical Power	CPU Clock
AMD-K6/233	7	2.2V	8.10W	66 MHz
AMD-K6/266	7	2.2V	8.75W	66 MHz
AMD-K6/300	7	2.2V	9.25W	66 MHz
AMD-K6-2/266	8	2.2V	8.85W	66 MHz
AMD-K6-2/300-66	8	2.2V	10.35W	66 MHz
AMD-K6-2/300	8	2.2V	10.35W	100 MHz
AMD-K6-2/333-66	8	2.2V	11.40W	66 MHz
AMD-K6-2/333	8	2.2V	11.40W	95 MHz
AMD-K6-2/350	8	2.2V	11.98W	100 MHz
AMD-K6-2/366	8	2.2V	12.48W	66 MHz
AMD-K6-2/380	8	2.2V	12.95W	95 MHz
AMD-K6-2/400	8	2.2V	13.65W	100 MHz
AMD-K6-2/450	8	2.4V	17.05W*	100 MHz
AMD-K6-III/400	9	2.4V	16.1W*	100 MHz
AMD-K6-III/450	9	2.4V	17.7W*	100 MHz

Source of Data: AMDs website

* Please note that all these numbers are only estimates and are
   subject to change.

Appendix E.
Flat Panel Connection Module

The FP24-01 connection module is installed on the JUKI-760E as a standard component. The FP24-01 converts JUKI-760E's on board 50pin LCD interface signal to the 44-pin 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**

PIN	DESCRIPTION	PIN	DESCRIPTION
1	+12V	2	+12V
3	GND	4	GND
5	5V/3.3V	6	5V/3.3V
7	FPVEE	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	NC	42	NC
43	FPVDD	44	5V/3.3V

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

PIN	DESCRIPTION	PIN	DESCRIPTION
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	FPVEE	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	+12V
4	GND
5	FPVEE Inverter Enable