

**FSC-1811V2NA**

**PCIMG 1.3 Full-size Motherboard  
with VGA/LAN/AUDIO**

**Version: A1**

## **Announcement**

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Before purchasing, please have a detailed understanding of the product performance to see whether it meets your requirements.

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# Safety Instructions

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1. Please read the *User Manual* carefully before using your FSC-1811V2NA.
2. Any boards or cards not ready to be installed shall be kept in the anti-static packaging;
3. Before taking board or card from anti-static packaging, put your hand on grounded metal object for a while (about 10 seconds) to eliminate static on your body;
4. While fetching a board or card, you should wear static protective gloves; hold a board by its edges or by its metal mounting bracket;
5. Before inserting, removing or re-configuring motherboard or expansion card, first disconnect the computer and peripherals from their power sources;
6. Before removing boards or computer, first turn off all power resources and disconnect the power cord from power source;
7. For whole set, when inserting or removing boards, first disconnect the computer and peripherals from their power sources;
8. Before you connect or unplug any equipment, make sure all power cords are unplugged in advance;
9. To avoid power on/off computer frequently, wait at least 30 seconds after turning off the computer before re-turning on the computer.

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## Chapter 1 Product Description

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### Overview

FSC-1811V2NA motherboard is the latest industrial-grade motherboard delivers high-performance on graphic processing, high-speed operation and I/O processing performance.

FSC-1811V2NA adopts Intel LGA775 microprocessor, supports both new generation PCI Express bus and PCI 2.3 bus. The system throughput of FSC-1811V2NA is improved by the 1.06GHz FSB and dual-channel DDRII 533/667/800 memory technology. FSC-1811V2NA adopts the forth generation Intel graphics engine controller, the core working frequency can reach 400MHz, the graphics performance is 30%~40% higher than 915G; it also supports dual-display of CRT and SDVO with external ADD2/ADD2+. It adopts the latest DMI bus to connect the south and north bridge; the bandwidth up to 2GB/s, supporting two gigabyte Ethernet ports.

It supports the extension of four 32-bit standard PCI slots, one PCI Express X16 slot, four PCI Express X1 slots, up to four serial ATA ports and eight USB2.0 ports via PICMG1.3 standard backplane.

FSC-1811V2NA adopts the latest SPI BIOS with the capacity of 16Mbits; it also supports Intel AMT technology via Intel 82566DM gigabyte network chip.

What's more, the motherboard is equipped with powerful intelligent fan controlling function and supports hot-swappable SATA hard disk.



## Ordering Information

Model	Description
FSC-1811V2NA	PCIMG1.3 standard full-size motherboard with VGA/LAN port/Audio port

## Environment and Dimensions

- Operating Environment
  - Temperature: 0°C~60°C
  - Relative Humidity: 5%~95% (non-condensing);
- Storage Environment
  - Temperature: -25°C~75°C;
  - Relative Humidity: 5%~95% (non-condensing);
- Dimension: 338.6mm x 126.4mm

## Motherboard Architecture

- 1) Technical Standard: DDR2, PCI, PCI Express;
- 2) Processor: LGA775 socket CPU, 533/800/1066MHz FSB, Intel Core™ 2 Duo, Pentium 4, Celeron D processor;
- 3) System Chipset: Intel Q965 + ICH8R chipset, 533/800/1066MHz FSB;
- 4) System Memory: Two 240-pin DDR2 memory banks, supporting memory up to 4GB;
- 5) BIOS: SPI Flash BIOS;
- 6) Onboard Video: Q965 integrates graphic controller, Intel 4<sup>th</sup> generation graphic engine, 400MHz working frequency, share the memory with system, adopts dynamic video memory technology (D.V.M.T) to

distribute video memory and system memory; CRT resolution up to 2048 x 1536, 75Hz refreshing frequency. It can realize dual-display of CRT and SVDO via ADD2/ADD2+ card;

- 7) Onboard LAN: 2 x 10/100/1Gb Base-T Ethernet port;
- 8) SATA Port: Supports up to four serial ATA port;
- 9) USB Port: 4 x USB2.0 standard port;
- 10) 1 x 7.1+2 channel Hi-Fi audio card:
- 11) 1 x earphone/speaker port; 1 x microphone port; 1 x Line-in port;
- 12) I/O Port: 1 x parallel port, 2 x RS-232 serial port, 1 x PS/2 keyboard/mouse interface;
- 13) Watchdog Timer: Software programmable supports 1~255 sec./min. System reset/interrupt.
- 14) Hardware Monitor: Monitors working voltage, CPU rotating speed and chassis temperature;
- 15) Power Supply: +5V, +3.3V, +12V, -12V.






## Jumper Settings

### 1) JCC1: CMOS Contents Clear and Save Settings


CMOS is powered by the onboard button battery. Clear CMOS will lead to permanent clearance of the previous system configuration and set to original system settings (factory settings). Steps: (1)Shutdown the computer and disconnect the power supply;(2)Instantly short JCC1 pin;(3)Startup the computer;(4)When starting, press DEL to enter BIOS setup and reload the optimized default value;(5)Save and Exit.



Setup	JCC
Open	[1-2] (Normal ,Default)
Instant short-circuit	[1-2] (Clear CMOS, initial BIOS)

JCC1

### 2) JP1, JP2: Startup BIOS Selection



BOOT	JP1	JP2
SPI	Short	X (random)
PCI	Open	Short
FWH	Open	Open

JP1, JP2

## Installation of the System Memory Modules

The motherboard comes with two DDRII (Double Data Rate) DIMM (Dual Inline Memory Modules) 240-pin memory slots (the icon is DIMM1 and DIMM2).

When installing memory modules, please note:

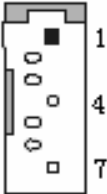
- Hold the DIMM module so that the key of the DDR module align

with those on the memory slot. Gently push the DDR module in an upright position until the clips of the slot close to hold the DDR module in place when the DDR module touches the bottom of the slot.

- Supports Intel 1.8V DDRII 533/667/800, memory up to 2GB.
- It recommended using DIMM memory module with SPD function, to assure the stability of memory.

## SATA Port

The motherboard offers four serial ATA ports.



SATA1~SATA4

Pin	Signal Name
1	GND(ground)
2	TX+
3	TX-
4	GND(ground)
5	RX-
6	RX+
7	GND(ground)

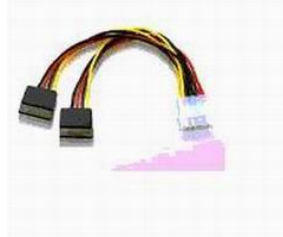
## SATA Hard Disk How-swap

Notice:

- 1) The south bridge of the motherboard should be higher than ICH6.
- 2) The hard disk should support SATA 2.0 port and adopt 15-line SATA hard disk power supply port.
- 3) The driver program of the chipset supports SATA hard disk hot-swap.
- 4) Hot-swap is not allowed for the SATA hard disk which contains operating system.



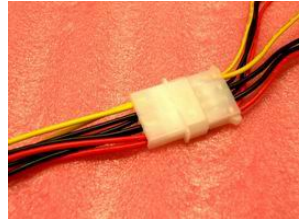
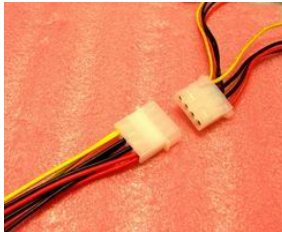
SATA hard disk data cable



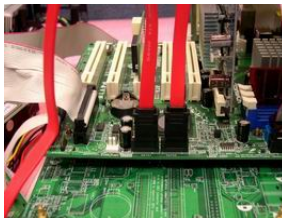
SATA hard disk power cable

Please strictly follow the steps as below for hot-swap to avoid any loss or damage.

Steps for the hot-swap of SATA hard disk:



Step1: Please connect the 1 x 4-pin power cable of SATA (white) with the 1 x 4-pin interface of power adapter.



Step 2: Please connect the data cable of SATA with the SATA port of the motherboard.



Step3: Please connect the 15-pin port (black) of SATA power cable with the SATA hard disk.



Step4: Connect SATA data cable with SATA hard disk.

Steps for the hot-swap of SATA hard disk:



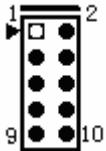
Step1: Pull the data cable out of SATA hard disk.



Step2: Pull the SATA 15-pin power cable (black) from SATA hard disk.

## USB Port

The motherboard offers two groups of 2 x 5-pin, supporting USB Ver. 2.0 devices, which can connect four USB devices at the same time.

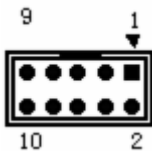


USB1,  
USB2

Pin	Signal Name	Pin	Signal Name
1	USB1_+5V power supply	2	USB2_+5V power supply
3	USB1_Data-	4	USB2_Data-
5	USB1_Data+	6	USB2_Data+
7	GND(ground)	8	GND(ground)
9	Key/null	10	GND_Chassis

## Audio Interface

The motherboard offers one 2 x 5-pin audio connector pins (AUDIO); it needs the corresponding audio transfer cable along with the CPU card to connect with audio devices.



AUDIO1

Pin	The motherboard	Pin	The motherboard
1	LOUT_R(speaker-out right)	2	LOUT_L(speaker-out left)
3	AGND(audio signal ground)	4	AGND(audio signal ground)

5	LIN_R(line-in right)	6	LIN_L(line-in left)
7	AGND(audio signal ground)	8	AGND(audio signal)
9	MICP_IN(MIC-in)	10	MICP_P(MIC-in pull-up)

## Fan Interface

The board provides one group of standard fan socket (CPU\_FAN1); while using the fan socket, please pay attention to the following steps:

- Fan current should not be more than 350mA (4.2W, 12V).
- Check if the fan cable accords with the socket cable. Power cable (usually red) is in the middle. Ground wire (usually black) and fan rotating speed output pulse signal line (other color).Some fans don't have rotation detection but the wire output is up to 12V, which will damage CPU, this is non-standard wire link. It is recommended to use fan with rotation detection.
- Adjust the fan airflow to the direction of heat dissipation.



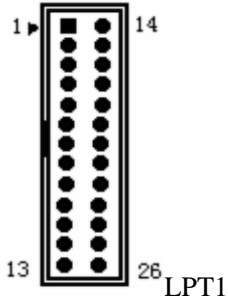
CPU\_FAN1

Pin	Signal Name
1	Ground
2	+12V power supply
3	Fan rotating speed pulse output
4	Fan rotating speed PWM control

## Parallel Port and Serial Port

### (1) Parallel Port

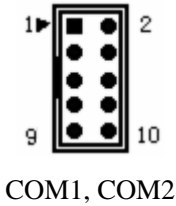
It provides one group of 26-pin parallel ports, which can be used to connect peripherals with parallel ports.



Pin	Signal Name	Pin	Signal Name
1	STB#, gating	14	AFD#, auto feed
2	PD0, parallel data 0	15	ERR#, error
3	PD1, parallel data 1	16	INIT#, initialize
4	PD2, parallel data 2	17	SLIN#, select input
5	PD3, parallel data 3	18	GND, ground
6	PD4, parallel data 4	19	GND, ground
7	PD5, parallel data 5	20	GND, ground
8	PD6, parallel data 6	21	GND, ground
9	PD7, parallel data 7	22	GND, ground
10	ACK#, response	23	GND, ground
11	BUSY	24	GND, ground
12	PE, paper empty	25	GND, ground
13	SLCT, select	26	NC, not connected

## (2) Serial Port

COM1 and COM2 can connect with mouse, modem and digital cameras that have RS-232 standard ports.



Pin	Signal Name
1	DCD, data carrier detection
2	RXD, receive data
3	TXD, transmit data
4	DTR, data terminal ready
5	GND, ground
6	DSR, data setup ready
7	RTS, request to send
8	CTS, clear to send
9	RI, ring indicator
10	NC, not connected

## Display Interface

VGA1 is a 15-line D-type VGA display socket.



Pin	Signal Name	Pin	Signal Name
1	R, red	2	G, green
3	B, blue	4	NC, not connected
5	GND, ground	6	GND, ground
7	GND, ground	8	GND, ground
9	CRT_5V (+5V)	10	GND, ground
11	NC, not connected	12	DDC DATA

13	HSYNC, horizontal synchronization	14	VSYNC, vertical synchronization
15	DDCCLK, DDC clock		

## Network Port

### 82566DM-LAN1 and 82573E-LAN2

The motherboard has 1000Mbps Ethernet port, LILED and ACTLED are indicators of Ethernet port, they indicate the LAN connecting status and transmitting status. Please refer to the LED status descriptions as below:

MDI0/2+, MDI0/2-: Positive/negative

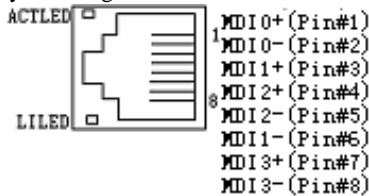
MDI1/3+, MDI1/3-: Positive/negative

send data signal.

receive digital signal.

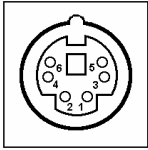
ACTLED: Network activity status light

LILED: Network link status light



LILED	Indicating status	ACTLED	Indicating status
Green, on	100Mbps	Flash	Transmitting data
Yellow, on	1000Mbps	Stop flashing	No data transmitting
Off	10Mbps	Off	

## Keyboard and Mouse Interface



KM1

Pin	Signal Name
1	KB_DATA, keyboard data
2	MS_DATA, mouse data
3	GND, ground
4	+5V power supply
5	KB_CLK, keyboard clock
6	MS_CLK, mouse clock

## External Keyboard Port

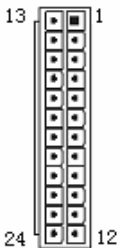


KB1

Pin	Signal Name
5	+5V
4	Ground
3	Null
2	Keyboard data
1	Keyboard clock

## Power Supply Interface

### 1) ATX Power Supply Interface

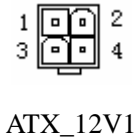


ATX1

Signal Name	Pin	Signal Name
+3.3V Power supply	13   1	+3.3V Power supply
-12V Power supply	14   2	+3.3V Power supply
GND, ground	15   3	GND, ground
PS_ON, power supply switch	16   4	+5V Power supply
GND, ground	17   5	GND, ground
GND, ground	18   6	+5V Power supply
GND, ground	19   7	GND, ground

-5V Power supply	20	8	PWROK, power supply working normally
+5V Power supply	21	9	+5V Standby
+5V Power supply	22	10	+12V Power supply
+5V Power supply	23	11	+12V Power supply
GND, ground	24	12	+3.3V Power supply

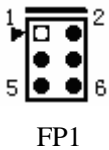
## 2) +12V Power Supply Interface



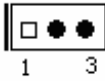
Pin	Signal Name
1	GND, ground
2	GND, ground
3	+12V Power supply
4	+12V Power supply

## Status Indicator Port

FP1, FP2 and FP3 are cabled to the function button or LED on the front panel of chassis.

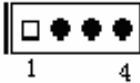


Pin	Signal Name	Pin	Signal Name
1	Power switch IC signal	2	Power terminal of power switch
3	Ground	4	System reset signal
5	Hard disk indicator, negative	6	Hard disk indicator, positive



FP2

Pin	Signal Name
1	Power LED+, indicator positive
2	NC, not connected
3	GND, ground



FP3

Pin	Signal Name
1	Speaker output
2	NC, not connected
3	GND, ground
4	+5V Power supply

## **Chapter 3 BIOS Introduction**

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Regarding the BIOS features setup of FSC-1811V2NA, please consult the *AMI BIOS Setup Guide* edited by EVOC Company.

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# Appendix

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## Watchdog Programming Guide

---

FSC-1811V2NA offers programmable watchdog timer software which can be set by minutes or seconds and up to 255-level (hereinafter short as WDT). Through programming, WDT timeout event can reset system or produce maskable interrupt.

It describes WDT program in C language as below. Please notice that before operating WDT, you should first enter WDT programming mode; after finishing WDT operation, exit WDT.

Please follow the below instructions when you program WDT:

- Enter WDT programming mode
- Set the WDT working mode/startup WDT/shutdown WDT
- Exit WDT programming mode

Please consult the following example code for the WDT programming

Required to include the following files:

```
#include <stdio.h>
#include <dos.h>
#include <bios.h>
#include <stdlib.h>
#include <string.h>
```

(1) Enter WDT programming mode

```
outputb(0x2e,0x87); //Enter WDT program mode, write 87 for two times
in the INDEX PORT
```

```
outputb(0x2e,0x87); //INDEX PORT [4e /2e], DATA PORT[4F/2F]
```

```
outputb(0x2e,0x07); //reg0x07, used to select logic device
```

```
outputb(0x2f, 0x08); //select logic device8,
```

```

outportb(0x2e,0x30); //reg0x30, device enable register, 0=disable,
1=enable

```

```

outportb(0x2f,0x01); //enable device8

```

(2) Set WDT working mode as reset or interrupt mode:

```

outportb(0x2e,0x2D);

```

```

char oldval = inportb(DATAP);

```

a. Configure WDT to reset mode

```

oldval &= 0xfe;

```

```

    /*reg0x2d.bit0, reset mode, 0 for here

```

```

    1=GPIO50

```

```

    0=WDTO

```

```

    */

```

```

outportb(0x2f, oldval);

```

b. Configure WDT to interrupt mode

```

oldval |= 0x01;

```

```

    /*reg0x2d.bit0, interrupt mode, 1 for here

```

```

    1=GPIO50

```

```

    0=WDTO

```

```

    */

```

```

outportb(0x2f, oldval);

```

```

outportb(0x2e,0xf7); //Select WDT interrupt number

```

```

outportb(0x2f,IRQ_RESOURCE);

```

Thereinto, IRQ\_RESOURCE =0: Disable any interrupt

```

    /*

```

```

    register 0xF7

```

```

    bit[3:0]WDT interrupt Mapping

```

```

    1111=IRQ 15

```

```

    .....

```

```

    0011=IRQ3

```

0010=IRQ2

0001=IRQ1

0000=Disable

\*/

(3) Select WDT by minute or second:

a. Please use the following command when selecting counting in minute:

; Assume it is in WDT programming status

```
outputb(0x2e,0xf5); //select counting in minute, register 0xf5.bit3=1.
```

```
outputb(0x2f,0x08);
```

b. Please use the following command when selecting counting in second:

; Assume it is in WDT programming status

```
outputb(0x2e,0xf5); //select counting in minute, register 0xf5.bit3=1.
```

```
outputb(0x2f,0);
```

(4) Enable/Disable WDT

; Assume it is in WDT programming status

```
outputb(0x2e,0xf6); //input the preset time TIME-OUT-VALUE
```

```
outputb(0x2f,TIME-OUT-VALUE);
```

Notice:TIME-OUT-VALUE ranges from 1 to 255, counts in minute or second. WDT will be disabled if the TIME-OUT-VALUE is set to 0.

If TIME-OUT-VALUE is set to any value except 0, WDT will be enabled.

(5) Exit WDT programming mode

```
outputb (0x2e,0xaa);
```

## I/O Port Address Mapping

The space of system I/O address is 64K. Each peripheral takes up a section of I/O space. I/O address assignments of some devices of the motherboard are shown in the following table. The I/O addresses of PCI devices (such as PCI network card) are not listed, for their addresses are configured by software.

Address	Device Description
000h - 00Fh	DMA controller# 1
020h - 021h	Programmable interrupt controller#1
040h - 043h	System timer
060h - 064h	Standard 101/102 keyboard controller
070h - 071h	Real-time clock, NMI
080h - 09Fh	DMA page register
0A0h - 0A1h	Programmable interrupt controller#2
0C0h - 0DEh	DMA controller# 2
0F0h - 0FFh	Numerical value data processor
170h - 177h	Slave IDE
1F0h - 1F7h	Master IDE
295h - 296h	Hardware monitor
2F8h - 2FFh	Serial port #2(COM2)
376h	Slave IDE (dual FIFO)
378h - 37Fh	Parallel port #1 (LPT1)
3B0h - 3DFh	Intel <sup>®</sup> 82945G integrated graphics controller
3F0h - 3F5h	Standard floppy disk controller
3F6h	Master IDE (dual FIFO)
3F8h - 3FFh	Serial port #1(COM1)

## IRQ Assignment Table

The system has 15 interrupt sources in total. Some have been occupied by system equipments. Only those unoccupied interrupt sources can be assigned to other equipments. ISA equipment requests to use interrupt exclusively; only ISA equipment can be assigned interrupt by BIOS or operating system. And multiple PCI equipment can share one interrupt, and assigned by BIOS or operating system, too. Interrupt assignment of some devices of the motherboard is shown in the following table, but interrupt resources occupied by PCI devices are not included.

Level	Function
IRQ0	System timer
IRQ1	Standard 101/102 keyboard or Microsoft keyboard
IRQ2	Programmable interrupt controller
IRQ3	Serial port#2
IRQ4	Serial port#1
IRQ5	Reservation
IRQ6	Standard floppy disk controller
IRQ7	Parallel port#1
IRQ8	System CMOS/Real-time clock
IRQ9	Software rerouting Int 0Ah
IRQ10	Reservation
IRQ11	Reservation
IRQ12	PS/2 mouse
IRQ13	Numerical value data processor
IRQ14	Master IDE
IRQ15	Slave IDE

**For more information please visit: <http://www.evoc.com>**