

EmCORE-i2709

3.5" Compact Board

Quick Installation Guide

Version 1.2

Form Factor
3.5" Compact Board

CPU
Soldered onboard Intel® Atom™ N270 1.6GHz Processor

Chipset
Intel® 945GSE Intel® ICH7M

Video
Dual Channels 24-bit LVDS/ Analog RGB/ TV-out

LAN
2 x Realtek 8111 PCIe Gigabit Ethernet

Audio
Realtek ALC655 AC97 Audio CODEC, Line-in/ Line-out/ Mic-in

I/O
Mini-PCI/ Mini-Card/ SATA/ USB/ COM/ LPT/ DIO

◆ Technical Support

If you have any technical difficulties, please consult the user's manual first at:
<ftp://ftp.arbor.com.tw/pub/manual>

Please do not hesitate to call or e-mail our customer service when you still can not find out the answer.

<http://www.arbor.com.tw>

E-mail: info@arbor.com.tw

Declaration of Conformity

FCC Class A

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



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4041270900120P

Packing List

Before you begin installing your Compact Board, please make sure that the following materials have been shipped:



1 x EmCORE-i2709 3.5" Compact Board with heat sink



1 x Driver CD

1 x Quick Installation Guide

If any of the above items is damaged or missing, contact your vendor immediately.

Ordering Information

EmCORE-i2709	Intel Atom™ N270 1.6GHz 3.5" Compact Board
FCDB-1293	4 x COM ports & digital I/O daughter board
CBK-11-2709-00	Cable Kit 1 x Audio Cable 2 x COM Port Cables 1 x IDE Cable 1 x KB & MS Cable 2 x LAN Cables 1 x LPT to FDD Cable 1 x Parallel Port Cable 2 x SATA Cables 1 x TV-out Cable 3 x USB Cables 1 x VGA Cable

The Installation Paths of CD Driver

Windows 2000 & XP

Driver	Path
CHIPSET	\\CHIPSET\\INF 9.11
LAN	\\ETHERNET\\REALTEK\\8111_WINXP_5764
VGA	\\GRAPHICS\\INTEL_2K_XP_32\\1432
AUDIO	\\AUDIO\\REALTEK_AC97\\Win2K_XP_A406

Windows 7

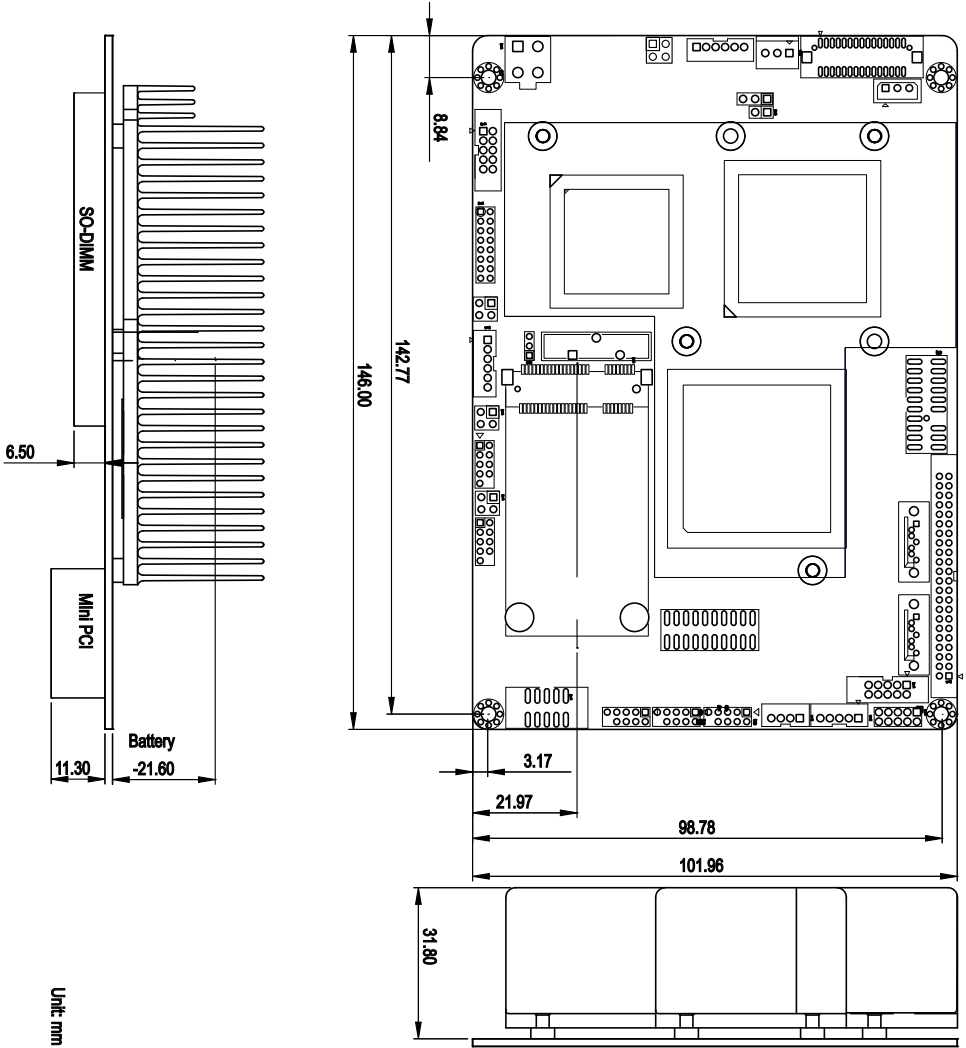
Driver	Path
CHIPSET	\\CHIPSET\\INF 9.11
LAN	Windows 7 built-in LAN driver
VGA	\\GRAPHICS\\INTEL_WIN7_32\\1930
AUDIO	\\AUDIO\\REALTEK_AC97\\Win7_32_64_6305

Specifications

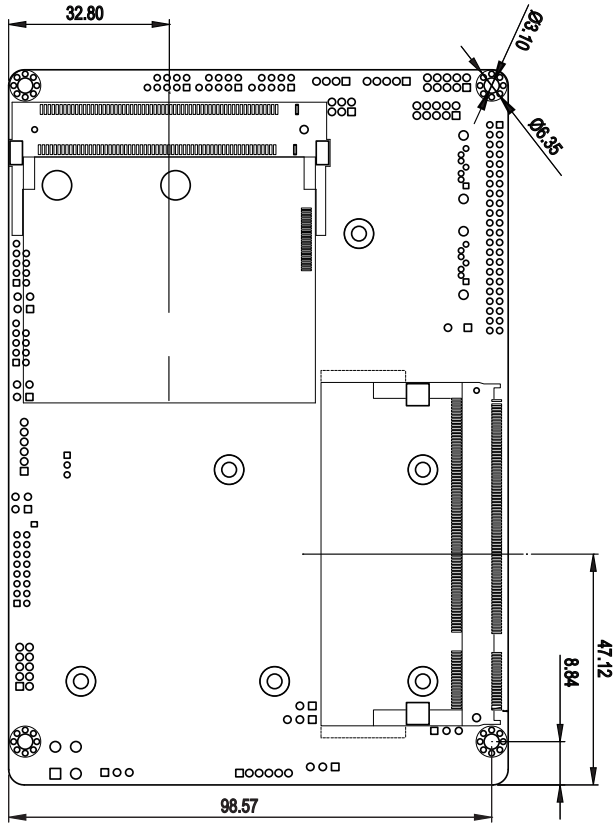
Form Factor	3.5" Compact Board
CPU	Intel® Atom™ N270 CPU 1.6GHz with 533MHz FSB
Chipset	Intel® 945GSE + Intel® ICH7M
System Memory	1 x 200-pin SO-DIMM Socket Up to 2GB DDR2 533MHz SDRAM (Bottom side)
VGA/ LCD Controller	Integrated Intel Graphics Media Accelerator 950, Dual Channels 24-bit LVDS
Ethernet	2 x Realtek 8111 PCIe Gigabit Ethernet controllers
I/O Chips	Winbond W83627HG
BIOS	AMI PnP Flash BIOS
Audio	Realtek ALC655 AC97 Audio CODEC, MIC-in/ Line-In/ Line-Out
Storage	2 x Serial ATA 150MB/s HDD transfer rate 1 x IDE Ultra ATA 33, support 2 IDE devices 1 x Floppy connector share with LPT port
Serial Port	2 x COM ports (COM1: RS-232, COM2: RS-232/422/485 selectable)
Parallel Port	1 x LPT Port (SPP/EPP/ECP mode selectable)
KBMS	One 6-pin wafer connector (PS/2 interface Keyboard and Mouse via cable)
Universal Serial Bus	6 x USB 2.0 ports
Digital I/O	8-bit programmable Digital Input/Output
Expansion Interface	1 x Mini-Card Slot 1 x Mini PCI Socket (Bottom side)
Operation Temp.	-20°C ~ 70°C (-4°F ~ 158°F)
Watchdog Timer	1~255 levels Reset
Dimension (L x W)	146 x 102 mm (5.7" x 4.0")

Board Dimensions

Top View



Bottom View



Unit: mm

Jumpers/ Connectors Quick Reference

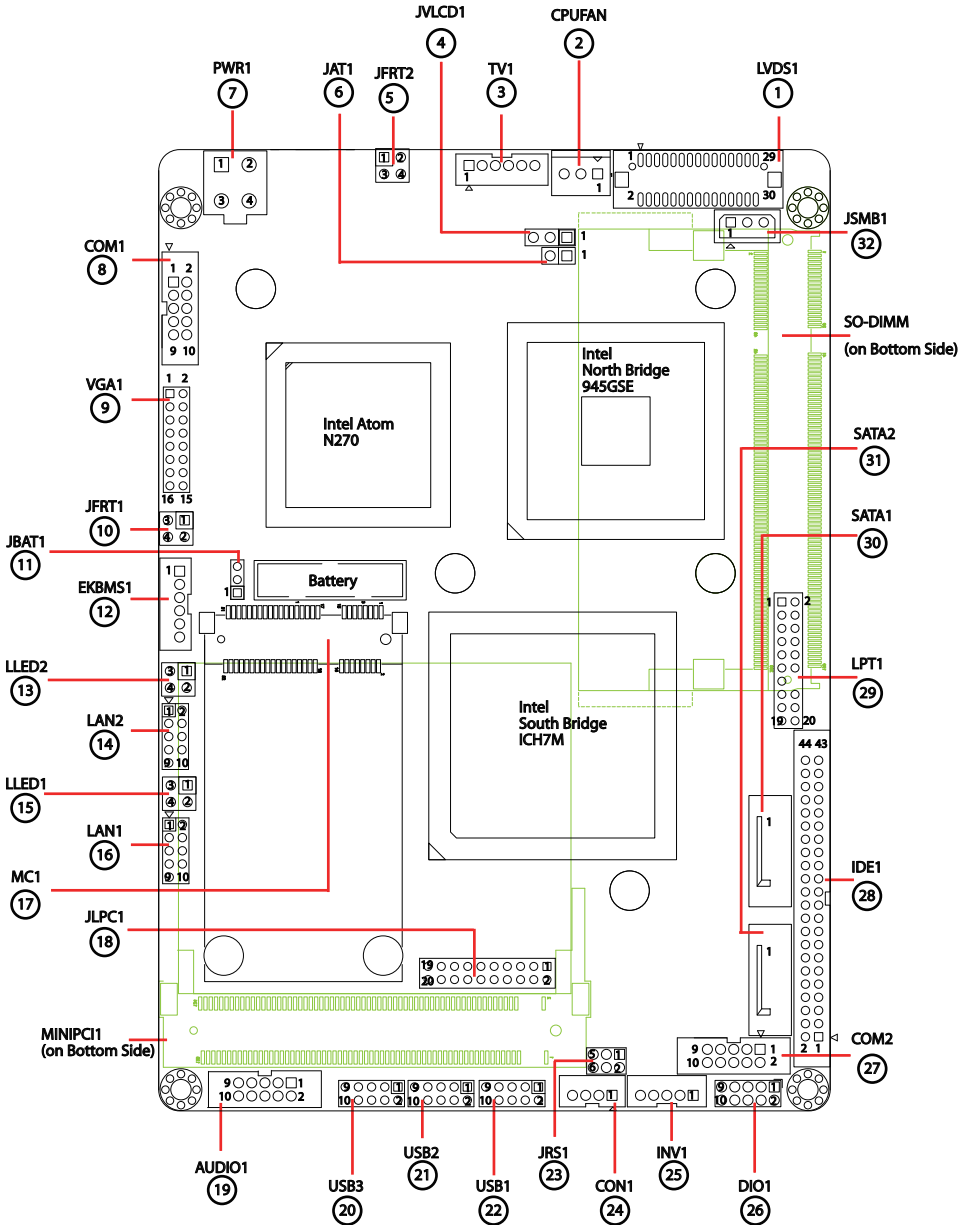
Jumpers

Label	Function
JAT1	AT/ATX Power Mode Selection
JBAT1	Clear CMOS Setting
JRS1	COM2 RS-232 / 422 / 485 Selection
JVLCD1	LCD Voltage Selection

Connectors

Label	Function
AUDIO1	Audio Connector
COM1	RS-232 Connector
COM2	RS-232/422/485 Connector
CON1	RS-422/485 Connector
CPUFAN	Fan Power Connector
DIO1	Digital I/O Connector
IDE1	IDE Connector
INV1	LCD Inverter Connector
JFRT1	Switch
JFRT2	LED indicators
JLPC1	Low Pin Count Connector
JSMB1	External SMBus Connector
EKBMS1	Keyboard & Mouse Connector
LAN1 ~ 2	Ethernet Connectors
LLED1~ 2	LAN LED Indicators
LPT1	Parallel Port or FDD Connector
LVDS1	LVDS LCD Connector
MC1	PCI Express Mini-Card Slot
MINIPCI1	Mini-PCI Socket (bottom side)
PWR1	+12V Power Connector
SATA1~2	Serial ATA Connectors
TV1	TV-out Connector
USB1~3	USB Port Connectors
VGA1	Analog RGB Connector

Jumpers & Connectors Location





Jumpers

JVLCD1: LCD Panel Voltage Selection (4)



The voltage of LCD panel could be selected by JVLCD1 in +5V or +3.3V.

Connector type: 2.54mm pitch 1x3-pin headers.

Pin	Voltage	
1-2	+5V	
2-3	+3.3V (Default)	

JAT1: AT/ATX Power Mode Selection (6)

Connector type: 2.54mm pitch 1x2-pin headers.



Pin 1-2	Power Mode Selection	
Short	AT Mode	
Open	ATX Mode (Default)	

Note:

To activate the ATX power mode, you must turn on the power button switch first (The connector for power button switch is located in JFRT1).

JBAT1: Clear CMOS Setting (11)




Connector type: 2.00mm pitch 1x3-pin headers.

Pin	Mode	
1-2	Keep CMOS (Default)	
2-3	Clear CMOS	

JRS1: COM2 RS-232/422/485 Selection (23)

Connector type: 2.00mm pitch 2x3-pin headers.

Mode	RS-232 (Default)	RS-422	RS-485
1-2	Short	Open	Open
3-4	Open	Short	Open
5-6	Open	Open	Short

		
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Connectors

LVDS1: LVDS LCD Connector (1)

Connector type: DF-13-30DP-1.25V connector and supports 24-bit dual channels.

Pin Desc.	Pin Desc.
2	VDD
4	TX2CLK+
6	TX2CLK-
8	GND
10	TX2D0+
12	TX2D0-
14	GND
16	TX2D1+
18	TX2D1-
20	GND
22	TX2D2+
24	TX2D2-
26	GND
28	TX2D3+
30	TX2D3-
1	VDD
3	TX1CLK+
5	TX1CLK-
7	GND
9	TX1D0+
11	TX1D0-
13	GND
15	TX1D1+
17	TX1D1-
19	GND
21	TX1D2+
23	TX1D2-
25	GND
27	TX1D3+
29	TX1D3-



CPUFAN: Fan Power Connector (2)

CPUFAN is a 3-pin headers for the CPU fan. The fan must be a +12V fan.

Pin	Description
1	GND
2	+12V
3	FAN_Detect

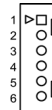


TV1: TV-out Connector (3)

Connector type: 2.00mm pitch 1x6-pin box wafer connector

Composite Video			
1	CVBS	2	GND
3	Unused	4	GND
5	Unused	6	GND

S-Video			
1	Unused	2	GND
3	Luminance	4	GND
5	Chrominance	6	GND




JFRT2: LED Indicators (5)

This connector provides signals for LED indicators presenting the status of the system.

Connector type: 2.54 mm pitch 2x2 pin headers


Pin	Description	Pin	Description
1	PWRLED+	2	PWRLED-
3	HDDLED+	4	HDDLED-



PWR1: +12V Connector (7)

PWR1 supplies CPU operation at +12V (Vcore).

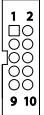
Pin	Desc.	Pin	Desc.
2	GND	4	+12V
1	GND	3	+12V



COM1~2: RS-232 Connectors (8, 27)

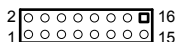
Connector type: 2.00mm pitch 2x5-pin box headers.

Pin	Desc.	Pin	Desc.
1	DCD#	2	RXD
3	TXD	4	DTR#
5	GND	6	DSR#
7	RTS#	8	CTS#
9	RI#	10	N/C



VGA1: Analog RGB Connector (9)

Connector type: 2.00mm pitch 2x8-pin headers.




Pin	Description	Pin	Description
1	RED	2	GREEN
3	BLUE	4	N/C
5	Analog RGB_GND	6	Analog RGB_GND
7	Analog RGB_GND	8	Analog RGB_GND
9	Analog RGB_VCC	10	Analog RGB_Detect
11	N/C	12	DDC_DATA
13	HSYNC	14	VSYNC
15	DDC_CLOCK	16	N/C

JFRT1: Switch (10)

This connector provides signals for the system power switch and reset.

Connector type: 2.54mm pitch 2x2-pin headers.

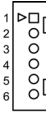
Pin	Description	Pin	Description
1	PWRBTN+	2	PWRBTN-
3	RESET+	4	RESET-



EKBMS1: Keyboard & Mouse Connector (12)

Connector type: 2.0mm pitch 1x6-pin box wafer connector.

Pin	Description
1	KB_DATA
2	GND
3	MS_DATA
4	KB_CLK
5	KB_VCC
6	MS_CLK



LLED1,2: LAN1/LAN2 LED Indicators (15, 13)

Connector type: 2.54mm pitch 2x2-pin headers.

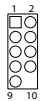
Pin	Description	Pin	Description
1	Active	2	+3V
3	+3V	4	Link



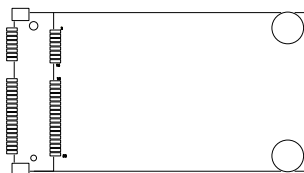
LAN1,2: Ethernet Connectors (16, 14)

Connector type: 2.00mm pitch 2x5-pin headers.

Pin Desc.	Pin Desc.
1 TX+/ MDI0+	2 TX/ MDI0-
3 RX+/ MDI1+	4 N/C/ MDI2+
5 N/C/ MDI2-	6 RX-/ MDI1-
7 N/C/ MDI3+	8 N/C/ MDI3-
9 N/C	10 N/C (Key)



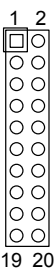
MC1: Mini-Card Socket (17)



JLPC1: Low Pin Count Connector (18)

Connector type: 2.00mm pitch 2x10-pin headers


Pin	Desc.	Pin	Desc.
1	CLK	2	GND
3	LFRAME	4	N/C
5	LRESET	6	N/C
7	LAD3	8	LAD2
9	+3.3V	10	LAD1
11	LAD0	12	GND
13	N/C	14	N/C
15	+3.3V_SB	16	SERIRQ
17	GND	18	CLKRUN
19	PD	20	N/C



AUDIO1: Audio Connector (19)

Connector type: 2.00mm pitch 2x5-pin box headers.

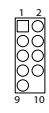
Pin	Description	Pin	Description
1	Line Left In	2	Line Right In
3	GND	4	GND
5	MIC1	6	MIC2
7	GND	8	GND
9	Line-out Left	10	Line-out Right



USB1~3: USB Connectors (22, 21, 20)

Connector type: 2.00mm pitch 2x5-pin headers.


Pin	Desc.	Pin	Desc.
1	+5V	2	+5V
3	USBD-	4	USBD-
5	USBD+	6	USBD+
7	GND	8	GND
9	GND	10	N/C (Key)



CON1: RS-422/485 Connector (24)

Connector type: 2.00mm pitch 1x4-pin box wafer connector.


Pin	RS-422	RS-485
1	TX+	DATA+
2	TX-	DATA-
3	RX+	N/C
4	RX-	N/C



INV1: LCD Inverter Connector (25)

Connector type: 2.00mm pitch 1x5-pin box wafer connector.


Pin	Description
1	+12V
2	GND
3	Backlight on/off
4	Brightness control
5	GND



DIO1: Digital I/O Connector (26)

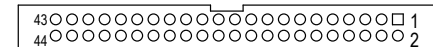
DIO1 is a 8-bit DIO connector w/ onboard 10-pin headers, supports programmable Input / Output. Connector type: 2.00 mm pitch 2x5-pin headers

Pin	Description	Pin	Description
1	DIO0	2	DIO1
3	DIO2	4	DIO3
5	DIO4	6	DIO5
7	DIO6	8	DIO7
9	+5V	10	GND



IDE1: Primary IDE Connector (28)

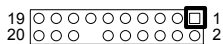
Connector type: 2.00mm pitch 2x22-pin box headers.



Pin	Description	Pin	Description
1	IDE RESET	2	GND
3	DATA7	4	DATA8
5	DATA6	6	DATA9
7	DATA5	8	DATA10
9	DATA4	10	DATA11
11	DATA3	12	DATA12
13	DATA2	14	DATA13
15	DATA1	16	DATA14
17	DATA0	18	DATA15
19	GND	20	N/C
21	REQ	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO READY	28	IDSEL
29	DACK	30	GND
31	IRQ14	32	N/C
33	ADAD1	34	ATA66 DETECT
35	ADAD0	36	ADAD2
37	CS#1	38	CS#3
39	IDEACT	40	GND
41	+5V	42	+5V
43	GND	44	N/C

LPT1: Parallel Port or FDD Connector (29)

Connector type: 2.00 mm pitch 2x10-pin headers
It can be selected by LPT or FDD mode via BIOS.



Pin	Description	Pin	Description
1	STROBE#	2	AFD#
3	PTD0	4	Error#
5	PTD1	6	INIT#
7	PTD2	8	SLIN#
9	PTD3	10	GND
11	PTD4	12	GND
13	PTD5	14	N/C (Key)
15	PTD6	16	Busy
17	PTD7	18	PE
19	ACK#	20	Select

Parallel port connector is shared with FDD.

Pin	Description	Pin	Description
1	N/C	2	RWC#
3	RINDEX#	4	HEAD#
5	TRACK0#	6	DIR#
7	WP#	8	STEP#
9	RDATA#	10	GND
11	DSKCHG#	12	GND
13	N/C	14	N/C (Key)
15	N/C	16	MOB#
17	N/C	18	WD#
19	DSB#	20	WE#

JSMB1: External SMBus Connector (32)

Connector type: 2.54mm pitch 1x3-pin box wafer connector.

Pin	Description	
1	Data	1
2	Clock	2
3	SMB_Alert#	3



MINIPCI1 : Mini-PCI Socket (bottom side)



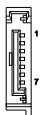
DIMM1 : SO-DIMM Socket (bottom side)



SATA1~2: Serial ATA Connectors (30, 31)

High speed transfer rates (150MB/s).

Pin	Description
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND



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