

**5.25" SBC, Intel® Atom™ N270 1.6GHz, Dual LVDS/ VGA/
HDTV, Dual PCIe Mini, Dual PCIe GbE, USB2.0, SATA, RoHS**

NOVA-945GSE

Quick Installation Guide

Version 2.0

Jan. 21, 2013

Package Contents

NOVA-945GSE package includes the following items

- 1 x NOVA-945GSE-N270-R20 Single Board Computer
- 1 x VGA cable
- 1 x KB/MS Y cable
- 1 x Audio cable
- 2 x SATA cables
- 4 x RS-232 cables
- 1 x USB cable
- 1 x Mini Jumper Pack
- 1 x Utility CD
- 1 x QIG(Quick Installation Guide)



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Specifications

- CPU : Intel® Atom™ N270 1.6GHz with a 533MHz FSB
- System Chipset : Intel® 945GSE+ICH7M
- BIOS : AMI BIOS
- System Memory : 1x DDR2 DIMM 400/533MHz support up to 2GB
- Ethernet : Dual PCIe Realtek 8111CP GbE
- I/O Interface :
 - 3 x RS-232 (COM1, COM2, COM4)
 - 1 x RS-232/422/RS-485 (COM3)
 - 6 x USB 2.0
 - 2 x SATA
 - 1 x LPT
 - 1 x IDE
 - 1 x 6pin header for KB/MS
- Expansion :
 - 1 x PC/104+ (ISA+PCI bus, ISA by PCI to ISA Bridge : IT8888G)
 - 1 x PCI/104
 - 2 x PCIe mini card slots
 - 1 x PCI
- Digital I/O :
 - 8-bit digital I/O, 4-bit input/4-bit output
- Infrared Interface :
 - 1x Infrared Interface by pin header
- Super IO :
 - First Super IO : ITE IT8718F
 - Second Super IO :Fintek 81216D
- Display Output :
 - Analog CRT Support for CRT Hot plug
 - Support HDTV-out by pin header
 - 18/24-bit Dual-Channel LVDS Support up to UXGA (1600x 1200)
- Audio : Realtek ALC655 AC'97 Codec
- SSD : CF Type II
- TPM : 1 x 20pin by pin header
- Watchdog Timer :
 - Software programmable 1-255 sec. by Fintek 81216D
- Power Supply : 5V, AT/ATX support
- Power Consumption :
 - 5V@3.08A (Intel® Atom™ N270 with 2GB DDR2)
- Temperature : Operation: 0 ~ 60° C (32 ~ 140° F)
- Humidity : Operation: 5% ~ 95%, non-condensing
- Dimensions : 203mm x 146mm
- Weight : GW:1000g, NW:400g

Ordering Information

NOVA-945GSE-N270-R20 : 5.25" SBC,Intel ATOM Processor N270
1.6GHz,18 bits LVDS/ VGA/ HDTV,Dual PCIe Mini,Dual PCIe
GbE,USB2.0,SATA,RoHS

NOVA-945GSELVDS2-N270-R20 : 5.25" SBC,Intel ATOM Processor N270
1.6GHz,18+24 bits LVDS/ VGA/ HDTV,Dual PCIe Mini,Dual PCIe
GbE,USB2.0,SATA,RoHS

HDTV CABLESET-01 : HDTV Cable Set with S-Video, Composite and
Component Interfaces

32102-000100-200-RS : SATA Power cable

32200-000009-RS : 44pin 2.5" IDE cable

32200-015100-RS : LPT cable

32200-833600 : RS-422/485 cable

WMPCIE-V01-R30 : 802.11 b+g Wireless Mini-PCIe module

WMUSB-V01-R20 : 802.11 b+g Wireless USB module TPM-WI01-R10 :
20-pin WINBOND TPM Module, S/W management Tool

TPM-IN01-R11 : 20-pin INFINEON TPM Module, S/W management Tool

Connector /Jumper List

LABEL	FUNCTION
ATXCTL1	Power on mode setup
BT1	Battery Connector
CN1 CN2	SATA1, SATA2 Power Connectors
COM1 COM2 COM4	Internal Serial Port Connectors (RS-232)
COM3	Internal Serial Port Connectors (RS-232/422/485)
DIMM1	DDR2 SO-DIMM Slot
DIO1	Digital I/O Connector
F_PANEL1	PWR 、 RST Buttons 、 Indicators
IDE1	44PIN IDE Connector
INVERTER1 INV2	LVDS Panel Voltage Supply Connector
IR1	Infrared Interface Connector
J_CF1	CF Card Master/Slave setting jumper
J_CMOS1	CMOS state setting jumper
J_LCD_TYPE1	LVDS Panel Resolution Selection jumper
J_VLVDS1 J_VLVDS2	LCD Voltage Selector jumper
J1	System Fan Connector
J2	Main Power Input Connector
J3	LPT Connector
J4	PC/104+ Connector (PCI-BUS)
J5	3Pin ATX Power Connector
J6	PC/104 Connector (ISA-BUS)
J7	CRT CONNECTOR
J8	Audio Connector
J9	CF Card Slot
JP1	Configure COM3 Mode jumper
JP2	COM3 RS-422/485 connector
JP4	LVDS Panel Resolution Selection jumper
KB1	PS/2 MOUSE & KEYBOARD Connector
LAN1 LAN2	RJ-45 LAN Connectors
LVDS1	LVDS Panel Connector (18-bit)
LVDS2	LVDS Panel Connector (24-bit)

MINI_PCIE1 MINI_PCIE2	PCIe Mini Card Slots
PCI1	PCI Slot
SATA1/2	Serial ATA Connectors
TPM1	TPM module connector
TV1	TV Out Connector
USB1/2/3	Internal USB Connectors

J_CMOS1: Clear CMOS Setup	
PIN NO.	DESCRIPTION
1-2 (default)	Normal Operation
2-3	Clear CMOS Setup

J_VLVDS1, J_VLVDS2: LCD voltage setup	
PIN NO.	DESCRIPTION
1-2 (default)	3.3V
2-3	5V

ATXCTL1: Power on mode setup	
	DESCRIPTION
OPEN (default)	ATX
SHORT	AT

Notice: When configuring the ATXCTL1 jumper setting from ATX to AT power mode, remember to clear CMOS before turning on the system.

J_CF1:CF Card Master/Slave setting jumper	
	DESCRIPTION
Short	Master
Open (Default)	Slave

USB1, USB2, USB3 : Internal USB Connectors			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	VCC(+5V)	2	GND
3	DATA-	4	DATA+
5	DATA+	6	DATA-
7	GND	8	VCC(+5V)

J3: LPT Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	STROBE#	14	ALF#
2	PD0	15	ERROR#
3	PD1	16	PAR IN#
4	PD2	17	SLINTIN#
5	PD3	18	GND
6	PD4	19	GND
7	PD5	20	GND
8	PD6	21	GND
9	PD7	22	GND
10	ACK#	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT	26	N/C

F_PANEL1 : PWR & RST Buttons and Indicators panel					
FUNCTION	PIN	DESCRIPTION	PIN	DESCRIPTION	FUNCTION
PWR BTN	1	PWRBTSW-	2	VCC	Power LED
	3	GROUND	4	GROUND	
HDD LED	5	VCC	6	SYSRST-	RESET
	7	-HDLED	8	Ground	

COM1, COM2, COM3, COM4 : Internal Serial Port Connectors (RS-232)			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DATA CARRIER DETECT (DCD#)	2	DATA SET READY (DSR#)
3	RECEIVE DATA (RXD)	4	REQUEST TO SEND (RTS#)
5	TRANSMIT DATA (TXD)	6	CLEAR TO SEND (CTS#)
7	DATA TERMINAL READY (DTR#)	8	RING INDICATOR (RI#)
9	GND	10	N/C

DIO1: 8-bit GPIO Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	VCC5
3	GPO3	4	GPO2
5	GPO1	6	GPO0
7	GPI3	8	GPI2
9	GPI1	10	GPI0

J9: Compact Flash Slot			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	26	N/C
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	PD_CS#1	32	PD_CS#3
8	N/C	33	N/C
9	GND	34	PDIOR#
10	N/C	35	PDIOW#
11	N/C	36	VCC_5V
12	N/C	37	IRQ14
13	VCC_5V	38	VCC_5V
14	N/C	39	CSEL
15	N/C	40	N/C
16	N/C	41	IDE_RESET
17	N/C	42	PIORDY
18	SA2	43	PDREQ
19	SA1	44	PDDACK#
20	SA0	45	IDE_ACTIVE#
21	DATA 0	46	P66DET
22	DATA 1	47	DATA 8
23	DATA 2	48	DATA 9
24	N/C	49	DATA 10
25	N/C	50	GND

LVDS1 : LVDS Interface Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	LVDS DAP0	4	LVDS DAN0
5	LVDS DAP1	6	LVDS DAN1
7	LVDS DAP2	8	LVDS DAN2
9	LVDS CLKA+	10	LVDS CLKA-
11	N/C	12	N/C
13	GND	14	GND
15	LVDS DBP0	16	LVDS DBN0
17	LVDS DBP1	18	LVDS DBN1
19	LVDS DBP2	20	LVDS DBN2-
21	LVDS CLKB+	22	LVDS CLKB-
23	N/C	24	N/C
25	GND	26	GND
27	LCDVCC	28	LCDVCC
29	LCDVCC	30	LCDVCC

INVERTER1: 5-pin Header Inverter Connector	
PIN NO.	DESCRIPTION
1	LCD_BKLTCTL
2	GROUND
3	+12V
4	GROUND
5	BACKLIGHT ENABLE

LVDS2 : LVDS Interface Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	LVDS DAP0	4	LVDS DAN0
5	LVDS DAP1	6	LVDS DAN1
7	LVDS DAP2	8	LVDS DAN2
9	LVDS CLK1+	10	LVDS CLK1-
11	LVDS DAP3	12	LVDS DAN3
13	GND	14	GND
15	LVDS DAP4	16	LVDS DAN4
17	LVDS DAP5	18	LVDS DAN5
19	LVDS DAP6	20	LVDS DAN6
21	LVDS CLK2+	22	LVDS CL2-
23	LVDS DAP7	24	LVDS DAN7
25	GND	26	GND
27	LCDVCC	28	LCDVCC
29	LCDVCC	30	LCDVCC

J7: CRT Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	L_RED	2	DDC_CLK
3	L_GREEN	4	DDC_DATA
5	L_BLUE	6	GND
7	HSYNC	8	GND
9	VSYNC	10	GND

J2: Main Power Input Connector	
PIN NO.	DESCRIPTION
1	VCC 5V
2	GND
3	GND
4	12V

J5: 3Pin ATX Power Connector	
PIN NO.	DESCRIPTION
1	VCC 5V SBY
2	GND
3	PS ON#

JP1: configure COM3 Mode	
PIN NO.	DESCRIPTION
Short 1-2	RS - 232
Short 3-4	RS - 422
Short 5-6	RS - 485

KB1: PS/2 MOUSE & KEYBOARD Connector	
PIN NO.	DESCRIPTION
1	VCC (+5V)
2	MDAT
3	MCLK
4	KDAT
5	KCLK
6	GND

J1 : Fan Connector	
PIN NO.	DESCRIPTION
1	Fan Speed Detect
2	+12V
3	GND

IR1 : Infrared Interface Connector	
PIN NO.	DESCRIPTION
1	VCC5
2	NC
3	IRRX
4	GND
5	IRTX

JP2: COM3 RS-422/485 CONNECTOR			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	TX_422-	2	RX_422-
3	TX_422+	4	RX_422+
5	D_485+	6	D_485-

J8: Audio Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LINE OUT R	2	LINE IN R
3	GND	4	GND
5	LINE OUT L	6	LINE IN L
7	GND	8	GND
9	MICIN	10	N/C

JP4 : LVDS2 Panel Resolution Selection jumper		
1-2	3-4	Resolution
OPEN	OPEN	LVDS2 1440X900 48-bit (Default)
SHORT	OPEN	LVDS2 1024X768 24-bit
OPEN	SHORT	LVDS2 1366X768 24-bit
SHORT	SHORT	LVDS2 1280X1024 48-bit

MINI_PCIE1, MINI_PCIE2: PCI-e Mini Card Slots			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	PCIE_WAKE#	2	VCC3
3	N/C	4	GND
5	N/C	6	1.5V
7	CLKREQ#	8	N/C
9	GND	10	N/C
11	CLK-	12	N/C
13	CLK+	14	N/C
15	GND	16	N/C
17	N/C	18	GND
19	N/C	20	N/C
21	GND	22	PERST#
23	PERN0	24	VCC3
25	PERP0	26	GND
27	GND	28	1.5V
29	GND	30	SMBCLK
31	PETN0	32	SMBDATA
33	PETP0	34	GND
35	GND	36	USB D-
37	N/C	38	USB D+
39	GND	40	GND
41	GND	42	N/C
43	N/C	44	N/C
45	N/C	46	N/C
47	N/C	48	1.5V
49	N/C	50	GND
51	N/C	52	VCC3

IDE1 : IDE Interface Connector			
PIN NO.	DESCRIPTION	PIN NO.	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 REQ	22	GND
23	IOW#	24	GND
25	IOR#	26	GND
27	IDE CHRDY	28	CSEL
29	IDE DACK	30	GND
31	INTERRUPT	32	N/C
33	DA1	34	PDIAG#
35	DA0	36	DA2
37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GND
41	VCC	42	VCC
43	GND	44	N/C

SATA1 & SATA2 : Serial ATA Connectors	
PIN NO.	DESCRIPTION
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

CN1, CN2: SATA1, SATA2 Power Connectors	
PIN NO.	DESCRIPTION
1	VCC 5V
2	GND

INV2 : 5-pin Header Inverter Connector	
PIN NO.	DESCRIPTION
1	N/C
2	GROUND
3	+12V
4	GROUND
5	BACKLIGHT ENABLE

TV1: Video output for television			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	AGREEN_Y
3	GND	4	ARED_C
5	GND	6	ABLUE_CVBS

TPM1: TPM module connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LCLK	2	GND
3	LFRAME	4	KEY
5	LRESET	6	+5V
7	LAD3	8	LAD2
9	+3V	10	LAD1
11	LAD0	12	GND
13	SCL	14	SDA
15	SB3V	16	SERIRQ
17	GND	18	GLKRUN
19	LPCPD	20	LDRQ

J_LCD_TYPE1: LVDS1 Panel Resolution Selection jumper				
1-2	3-4	5-6	7-8	Resolution
OPEN	OPEN	OPEN	OPEN	LVDS1 640X480 18-bit
SHORT	OPEN	OPEN	OPEN	LVDS1 800X480 18-bit
OPEN	SHORT	OPEN	OPEN	LVDS1 800X600 18-bit (Default)
SHORT	SHORT	OPEN	OPEN	LVDS1 1024X768 18-bit
OPEN	OPEN	SHORT	OPEN	LVDS1 1280X1024 36-bit
SHORT	OPEN	SHORT	OPEN	LVDS1 1400X1050 36-bit
OPEN	SHORT	SHORT	OPEN	LVDS1 1400X900 36-bit
SHORT	SHORT	SHORT	OPEN	LVDS1 1600X1200 36-bit

Board Layout: Connector Locations







