

**5.25" SBC, Intel® Core™2 Duo CPU with Dual VGA, LVDS, Dual PCIe GbE, USB2.0 and SATA**

# **NOVA-9452**

## **Quick Installation Guide**

**Version 1.0**

Nov 30, 2007

### **Package Contents**

NOVA-9452 package includes the following items:

- 1 x NOVA-9452 single board computer
- 1 x mini jumper pack
- 1 x IDE flat cable 44p/44p
- 2 x SATA cable
- 1 x SATA power cable
- 1 x VGA cable (NOVA-9452), 2 x VGA cable (NOVA-9452VGA)
- 1 x KB/MS Y cable
- 1 x RS-232/422/485 cable
- 1 x 4 RS-232 Adapter cable
- 1 x USB cable
- 1 x Utility CD
- 1 x QIG (Quick Installation Guide)



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## Specifications

- CPU: Socket M Intel® Core™ Duo/Solo with 667MHz FSB or Intel® Celeron® M533MHz FSB (Yonah Core)
- System Chipset: Intel® 945GM + ICH7M
- BIOS  
AMI Flash BIOS
- System Memory  
1 x 200-pin Single channel DDRII 400/533/667 MHz up to 2GB
- Ethernet: Dual Broadcom BCM5787M PCIe GbE chipsets
- I/O  
I/O Interface
  - 4 x RS-232
  - 2 x RS-232/422/485
  - 6 x USB 2.0
  - 2 x SATA
  - 1 x IDE
  - 1 x LPT
  - 1 x KB/MS (by pin header)
- Expansion
  - 1 x PCI
  - 1 x PCIe Mini Card Slot
  - 1 x PC/104 + (ISA+PCI Bus)
- Digital I/O: 24-bit digital I/O, 12-bit input/12-bit output
- IrDA: by super I/O
- Super I/O: ITEIT8712F
- Display Interface:
  - 1<sup>st</sup> VGA output Integrated in Intel® 945GM
  - 2<sup>nd</sup> VGA through SDVO by Chronitel CH7317A(NOVA-9452VGA-R10 only)
  - Dual display independent by VGA1+VGA2 or VGA1+LVDS or VGA2+LVDS 18-bit Dual channel LVDS

- Audio
  - 5.1 Channel audio kit with Realtek ALC655 AC'97 codec
  - 7.1 Channel HD audio kit with Realtek ALC883 codec supports dual audio streams
- SSD: CF type I/II
- WTD: Software programable 1-255 sec. System reset
- Power Supply: AT/ATX Power
- Power Consumption:
  - 5V@3.81A, 12V@2.42A
  - (Intel Core2 Duo T7400 2.16GHz/667MHz CPU with 512MB DDR2 667MHz)
- Temperature: 0 ~ 60°C( 32 ~ 140°F)
- Humidity: 5% ~ 95%, non-condensing
- Dimension: 203mm x 146mm
- Weight: GW: 850g / NW:290g

## **Ordering Information**

### NOVA-9452-R10

5.25" SBC, Intel® Core™2 Duo CPU with VGA, LVDS, Dual PCIe GbE, USB2.0 and SATA

### NOVA-9452VGA-R10

5.25" SBC, Intel® Core™2 Duo CPU with Dual VGA, LVDS, Dual PCIe GbE, USB2.0 and SATA

### AC-KIT08R-R10

5.1 channel AC'97 Audio Kit with Realtek ALC655 codec

### AC-KIT-883HD-R10

7.1 channel HD Audio Kit with Realtek ALC883 codec support dual audio streams

IO-KIT-4COM-R10: 4 COM Ports Adapter Board

CF-479B-RS: CPU Cooler

3200-000017-RS: LPT cable

## Jumpers setting and Connectors

<b>J_CMOS1 : Clear CMOS Setup</b>	
J_CMOS1	DESCRIPTION
1-2 (default)*	Keep CMOS Setup (Normal Operation)
Short 2-3	Clear CMOS Setup

<b>J_VLVDS1 : Set The Panel Voltage</b>	
J_VLVDS1	DESCRIPTION
1-2 (default)*	Set The Voltage Level Of Panel To VCC3(3.3V)
Short 2-3	Set The Voltage Level Of Panel To VCC(5V)

<b>J_CF1 : configure CF Card type</b>	
JCF1	DESCRIPTION
OFF	Slave
ON	Master

<b>JP1 : configure COM2 Mode</b>	
JP1	DESCRIPTION
Short 1-2 (default)	RS - 232
Short 3-4	RS - 422
Short 5-6	RS - 485

<b>JP2 : configure COM1 Mode</b>	
JP2	DESCRIPTION
Short 1-2 (default)	RS - 232
Short 3-4	RS - 422
Short 5-6	RS - 485

<b>JP3 : PCI104 SERIRQ# select</b>	
JP3	DESCRIPTION
OFF	None
Short 1-2 (default)	Support

<b>JP4 : VIO Voltage select</b>	
JP4	DESCRIPTION
Short 1-2	VCC
Short 2-3	VCC3

<b>JP5 : PC104+ SERIRQ# select</b>	
JP5	DESCRIPTION
OFF	None
Short 1-2 (default)	Support

<b>CPU_FAN1 : CPU Fan Connector</b>	
PIN	DESCRIPTION
1	Rotation Signal
2	+12V
3	Ground

<b>IR1: IrDA connector</b>	
PIN	DESCRIPTION
1	VCC
2	NC
3	IR-RX
4	GND
5	IR-TX

<b>MINIPCIE1: PCI-E Mini Card Connector (DVI Connector)</b>			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	PCIE_WAKE#	2	VCC3
3	N/C	4	GND
5	N/C	6	1.5V
7	CLKREQ#	8	LFRAME#
9	GND	10	LAD3
11	CLK-	12	LAD2
13	CLK+	14	LAD1
15	GND	16	LAD0
17	PCIRST#	18	GND
19	LPC	20	VCC3
21	GND	22	PCIRST#
23	PERN2	24	3VDual
25	PERP2	26	GND
27	GND	28	1.5V
29	GND	30	SMBCLK
31	PETN2	32	SMBDATA
33	PETP2	34	GND
35	GND	36	USB D-
37	N/C	38	USB D+
39	N/C	40	GND
41	N/C	42	N/C
43	N/C	44	RF_LINK#
45	N/C	46	BLUELED#
47	N/C	48	1.5V
49	N/C	50	GND
51	N/C	52	VCC3

<b>CN1 : Programming LC4064 Connector</b>	
PIN	DESCRIPTION
1	VCC3
2	TDO
3	TDI
4	NC
5	NC
6	TMS
7	GND
8	TCK

<b>VGA1/VGA2 : VGA Connector</b>			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	Red	2	5V_DDCLK
3	Green	4	5V_DDCDA
5	Blue	6	GND
7	5V_HSYNC	8	GND
9	5V_VSYNC	10	GND

<b>PCI104: PCI104 Connector (120-pin PCI bus)</b>							
PIN	Description	PIN	Description	PIN	Description	PIN	Description
A1	GND	B1	SERIRQ#	C1	VCC	D1	AD0
A2	PIOVCC	B2	AD2	C2	AD1	D2	VCC
A3	AD5	B3	GND	C3	AD4	D3	AD3
A4	C_BE#0	B4	AD7	C4	GND	D4	AD6
A5	GND	B5	AD9	C5	AD8	D5	GND
A6	AD11	B6	PIOVCC	C6	AD10	D6	GND
A7	AD14	B7	AD13	C7	GND	D7	AD12
A8	VCC3	B8	C_BE#1	C8	AD15	D8	VCC3
A9	SERR#	B9	GND	C9	SBO-	D9	PAR
A10	GND	B10	PERR#	C10	VCC3	D10	SDONE
A11	STOP#	B11	VCC3	C11	PLOCK#	D11	GND
A12	VCC3	B12	TRDY#	C12	GND	D12	DEVSEL#
A13	FRAME#	B13	GND	C13	IRDY#	D13	VCC3
A14	GND	B14	AD16	C14	VCC3	D14	C_BE#2
A15	AD18	B15	VCC3	C15	AD17	D15	GND
A16	AD21	B16	AD20	C16	GND	D16	AD19
A17	VCC3	B17	AD23	C17	AD22	D17	VCC3
A18	IDSEL0	B18	GND	C18	IDSEL1	D18	IDSEL2
A19	AD24	B19	C_BE#3	C19	PIOVCC	D19	IDSEL3
A20	GND	B20	AD26	C20	AD25	D20	GND
A21	AD29	B21	VCC	C21	AD28	D21	AD27
A22	VCC	B22	AD30	C22	GND	D22	AD31
A23	PCI_REQ#0	B23	GND	C23	PCI_REQ#1	D23	PIOVCC
A24	GND	B24	PCI_REQ#2	C24	VCC	D24	PCI_GNT#0
A25	PCI_GNT#1	B25	VIO3	C25	PCI_GNT#2	D25	GND
A26	VCC	B26	PCLK0	C26	GND	D26	PCLK1
A27	PCLK2	B27	VCC	C27	PCLK3	D27	GND
A28	GND	B28	INT_PIRQD#	C28	VCC	D28	PCI_RST#
A29	+12V	B29	INT_PIRQA#	C29	INT_PIRQB#	D29	INT_PIRQC#
A30	-12V	B30	NC	C30	NC	D30	GND

<b>COM1/COM2 : Serial Port Connector</b>			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	-NDCD1	2	-NDSR1
3	NSIN1	4	-NRTS1
5	NSOUT1	6	-NCTS1
7	-NDTR1	8	-XRI1
9	GND	10	GND
11	C1 TXD485+	12	C1 TXD485#
13	C1 RXD485+	14	C1 RXD485#

<b>DIO1 : Digital Input / Output Connector</b>			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	Ground	2	VCC
3	IN0	4	OUT0
5	IN1	6	OUT1
7	IN2	8	OUT2
9	IN3	10	OUT3
11	8IN0	12	8OUT0
13	8IN1	14	8OUT1
15	8IN2	16	8OUT2
17	8IN3	18	8OUT3
19	8IN4	20	8OUT4
21	8IN5	22	8OUT5
23	8IN6	24	8OUT6
25	8IN7	26	8OUT7

<b>LPT1 : Parallel Port Connector</b>			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	STROBE#	14	AUTO FORM FEED #
2	DATA0	15	ERROR#
3	DATA1	16	INITIALIZE#
4	DATA2	17	PRINTER SELECT LN#
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	ACKNOWLEDGE#	23	GND
11	BUSY	24	GND
12	PAPER EMPTY	25	GND
13	PRINTER SELECT	26	N/C

<b>COM 3_6: Internal Serial Port Connector</b>			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	DATA CARRIER DETECT (-NDCD3)	2	DATA SET READY (-NDSR3)
3	RECEIVE DATA (NSIN3)	4	REQUEST TO SEND (-NRTS3)
5	TRANSMIT DATA (NSOUT3)	6	CLEAR TO SEND (-NCTS3)
7	DATA TERMINAL READY (-NDTR3)	8	RING INDICATOR (-XRI3)
9	GND (GND)	10	GND (GND)
11	DATA CARRIER DETECT (-NDCD4)	12	DATA SET READY (-NDSR4)
13	RECEIVE DATA (NSIN4)	14	REQUEST TO SEND (-NRTS4)
15	TRANSMIT DATA (NSOUT4)	16	CLEAR TO SEND (-NCTS4)
17	DATA TERMINAL READY (-NDTR4)	18	RING INDICATOR (-XRI4)
19	GND (GND)	20	GND (GND)
21	DATA CARRIER DETECT (-NDCD5)	22	DATA SET READY (-NDSR5)
23	RECEIVE DATA (NSIN5)	24	REQUEST TO SEND (-NRTS5)
25	TRANSMIT DATA (NSOUT5)	26	CLEAR TO SEND (-NCTS5)
27	DATA TERMINAL READY (-NDTR5)	28	RING INDICATOR (-XRI5)
29	GND (GND)	30	GND (GND)
31	DATA CARRIER DETECT (-NDCD6)	32	DATA SET READY (-NDSR6)
33	RECEIVE DATA (NSIN6)	34	REQUEST TO SEND (-NRTS6)
35	TRANSMIT DATA (NSOUT6)	36	CLEAR TO SEND (-NCTS6)
37	DATA TERMINAL READY (-NDTR6)	38	RING INDICATOR (-XRI6)
39	GND (GND)	40	GND (GND)

<b>IDE1 : IDE Interface Connector</b>			
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	BALE – DEFAULT
29	IDE DACK	30	GND
31	INTERRUPT	32	N/C
33	SA1	34	PDIAG#
35	SA0	36	SA2
37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GND
41	VCC	42	VCC
43	GND	44	N/C

<b>LVDS1: LVDS Connector</b>			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	GND1	2	GND2
3	A_Y0	4	A_Y0#
5	A_Y1	6	A_Y1#
7	A_Y2	8	A_Y2#
9	A_CK	10	A_CK#
11	A_Y3	12	A_Y3#
13	GND3	14	GND4
15	B_Y0	16	B_Y0#
17	B_Y1	18	B_Y1#
19	B_Y2	20	B_Y2#
21	B_CK	22	B_CK#
23	B_Y3	24	B_Y3#
25	GND5	26	GND6
27	VCC_LCD	28	VCC_LCD
29	VCC_LCD	30	VCC_LCD

<b>INVERTER1: Panel Power Supply</b>	
PIN	DESCRIPTION
1	BRIGHTNESS
2	GND1
3	12V
4	GND2
5	BL_EN

**PC104: J1 Connector (64 & 40 pin ISA bus)**

PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION
1	-IOCHK	33	SA14	2	GND	34	-DACK1
3	SD7	35	SA13	4	RSTDRV	36	DRQ1
5	SD6	37	SA12	6	VCC	38	-REFRESH
7	SD5	39	SA11	8	IRQ9	40	BCLK
9	SD4	41	SA10	10	NC	42	IRQ7
11	SD3	43	SA9	12	DRQ2	44	IRQ6
13	SD2	45	SA8	14	NC	46	IRQ5
15	SD1	47	SA7	16	-NOWS	48	IRQ4
17	SD0	49	SA6	18	+12V	50	IRQ3
19	IOCHRDY	51	SA5	20	GND	52	-DACK2
21	AEN	53	SA4	22	-SMEMW	54	TC
23	SA19	55	SA3	24	-SMEMR	56	BALE
25	SA18	57	SA2	26	-IOW	58	VCC
27	SA17	59	SA1	28	-IOR	60	ISAOSC
29	SA16	61	SA0	30	-DACK3	62	GND
31	SA15	63	GND	32	DRQ3	64	GND

**PC104: J2 Connector (64 & 40 pin ISA bus)**

PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION
1	GND	21	-MEMW	2	GND	22	-DACK5
3	-SBHE	23	SD8	4	-MEMCS16	24	DRQ5
5	SA23	25	SD9	6	-IOCS16	26	-DACK6
7	SA22	27	SD10	8	IRQ10	28	DRQ6
9	SA21	29	SD11	10	IRQ11	30	-DACK7
11	SA20	31	SD12	12	IRQ12	32	DRQ7
13	SA19	33	SD13	14	IRQ15	34	VCC
15	SA18	35	SD14	16	IRQ14	36	-MASTER
17	SA17	37	SD15	18	-DACK0	38	GND
19	-MEMR	39	NC	20	DRQ0	40	GND

**USB1/USB2/USB3: Internal USB Connector**

PIN	DESCRIPTION	PIN	DESCRIPTION
1	VCC	2	GND
3	DATA-	4	DATA+
5	DATA+	6	DATA-
7	GND	8	VCC

<b>SYS_FAN1 : system Fan Connector</b>	
PIN	DESCRIPTION
1	Rotation Signal
2	+12V
3	Ground

<b>KB_MS1: 6-pin Mini-DIN Keyboard/Mouse Connector</b>	
PIN	DESCRIPTION
1	VCC
2	Mouse Data
3	Mouse Clock
4	Keyboard Data
5	Keyboard Clock
6	GND

<b>ATXCTL1 : ATX Connector</b>	
PIN	DESCRIPTION
3	5VSB
2	PS_ON#
1	GND

<b>F_PANEL1 : PWR &amp; RST Buttons and Indicators panel</b>					
	PIN	DESCRIPTION	PIN	DESCRIPTION	
PWRBTN	1	PWRBTSW-	2	VCC	Power LED
	3	GND	4	GND	
HDD LED	5	VCC	6	SYSRST#	RESET
	7	-HDLED	8	GND	

<b>CF1 : CF Card Interface Slot</b>			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	GND	26	CD1#
2	D3	27	D11
3	D4	28	D12
4	D5	29	D13
5	D6	30	D14
6	D7	31	D15
7	CE#	32	CE2#
8	A10	33	VS1#
9	OE#	34	IOR#
10	A9	35	IOW#
11	A8	36	WE#
12	A7	37	IRQ
13	VCC	38	VCC
14	A6	39	CSEL#
15	A5	40	VS2#
16	A4	41	RESET#
17	A3	42	WAIT#
18	A2	43	INPACK#
19	A1	44	REG#
20	A0	45	BVD2
21	D0	46	BVD1
22	D1	47	D8
23	D2	48	D9
24	IOCS16#	49	D10
25	CD2#	50	GND2

<b>J_AUDIO1 : Audio Source Connector</b>			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	AC97_SYNC	2	AC97_BITCLK
3	AC97_SDOUT	4	AC97_PCBEAP
5	AC97_SDIN	6	AC97_RST#
7	AC97_VCC	8	AC97_GND
9	AC97_12V	10	AC97_GND

# Board Layout: Jumper and Connector Locations



