

3.5" SBC with Intel® Atom™ D425/N455/D525, DDR3,
VGA/18-bit+48-bit LVDS, GbE, USB2.0 and SATA 3Gb/s, Audio,
RoHS

WAFER-PV-D4253 N4553 / D5253 Quick Installation Guide

Version 1.0

Apr. 09, 2014

Package Contents

WAFER-PV-D4253/N4553/D5253 package includes the following items:

- 1 x WAFER-PV-D4253/N4553/D5253 Single Board Computer
- 1 x Power Cable
- 1 x KB/MS cable
- 1 x SATA with 5V output cable Kit
- 1 x Audio cable
- 1 x Mini Jumper Pack
- 1 x Utility CD
- 1 x QIG (Quick Installation Guide)



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Specifications

- CPU
 - Intel® Atom™ D525 dual-core processor 1.8GHz/1MB L2 cache
 - Intel® Atom™ D425 single-core processor 1.8GHz/512KB L2 cache
 - Intel® Atom™ N455 single-core processor 1.66GHz/512KB L2 cache
- System Chipset: Intel® ICH8M
- BIOS: UEFI BIOS
- Memory: One 204-pin 800MHz DDR3 SDRAM SO-DIMM supported
WAFER-PV-D425/D525(system Max. 4GB)
WAFER-PV-N455 (system Max. 2GB)
- Graphic
 - GMA 3150
 - Graphic core speed 400MHz for D525/D425
 - Graphic core speed 200MHz for N455
- Display interface: Analog CRT up to 2048x1536 for D525/D425, 1400x1500 for N455 Support for CRT hot plug
 - Dual-channel 24-bit LVDS by scaler chip Novatek 68667FG, resolution support up to 1920x1080
 - Single-channel 18-bit LVDS, resolution support up to WXGA 1366x768 or XGA 1024x768
- Ethernet:
 - Single GbE by Realtek RTL8111E with ASF2.0 support
- I/O Interface:
 - 3 x RS-232
 - 1 x KB/MS
 - 8 x USB 2.0
 - 1 x RS-232/422/485 with Auto Flow control
 - 2 x SATA 3Gb/s
 - 1 x CF Type II
- Digital I/O: 8-bit digital I/O, 4-bit input / 4-bit output
- Expansion: 1 x PCIe Mini card slot(PCle + USB + SATA singal) support IEI mini DOM
- Audio: Realtek ALC888 HD codec
- Watchdog timer:
 - Software programmable supports 1~255 sec. system reset by Super I/O
- Power Supply:
 - 12V only, AT/ATX support

- Super I/O : Fintek F81865
- FAN Connector
 - 1 x 3-Pin CPU fan
 - 1 x 3-Pin system fan
- SMBus: 1 x 4-pin wafer connector
- Power Consumption:
 - 12V@1.66A(Intel® Atom™ D525 1.8GHz with DDR3 1GB)
- Temperature: Operating :
 - 20°C ~60°C with free air, -20°C ~70°C with force air for D525 processor
 - 20°C ~65°C with free air, -20°C ~70°C with force air for D425 processor
 - 20°C ~70°C with free air, -20°C ~75°C with force air for N455 processor
- Humidity: 5% ~ 95%, non-condensing
- Weight: GW:600g / NW:180g

Ordering Information

WAFER-PV-D5253-R10: 3.5" SBC with Intel® Atom™ D525 1.8GHz, DDR3, VGA/18-bit+48-bit LVDS, GbE, USB2.0 and SATA 3Gb/s, Audio, RoHS

WAFER-PV-D4253-R10: 3.5" SBC with Intel® Atom™ D425 1.8GHz, DDR3, VGA/18-bit+48-bit LVDS, GbE, USB2.0 and SATA 3Gb/s, Audio, RoHS

WAFER-PV-N4553-R10: 3.5" SBC with Intel® Atom™ N455 1.66GHz, DDR3, VGA/18-bit+48-bit LVDS, GbE, USB2.0 and SATA 3Gb/s, Audio, RoHS

32000-070301-RS: Dual port USB cable

32000-0628000-RS: SATA cable

32205-000300-100-RS: RS-232/422/485 cable

32000-000049-RS: RS-232 cable

Jumpers setting and connectors

LABEL	FUNCTION
J_CMOS1	CMOS state setting
J_VLVDS1,2	LVDS1 Voltage Selection
JP1	COM2 Port Mode setting
JP2	LVDS2 Panel Resolution Selection
JP3	COM4 Pin 9 Mode Setting
JCF1	CF Card setting
J_LCD_TYPE1	LVDS1 Panel Resolution Selection
J_AUTOPWR1	AT Power Mode Setting
VGA1	VGA 15-pin Female Connector
USB3,4	2 Port USB Connector
LAN1	RJ45 LAN Connectors
KB/MS1	Keyboard & Mouse Connector
COM4	COM4 Port Connector
USB1-2	Internal 4 Port USB Connectors
SATA1 SATA2	Serial ATA Connectors
SATA_PWR1,2	Internal SATA Power Connector
BAT1	Battery Connector
CN2	SMBUS Connector
COM2	Internal Serial Port Connectors
COM1,3	Internal Serial Port Connectors
AUDIO1	AC'97 Connector
FAN1,2	Fan Connector
DIO1	Digital I/O Connector
CN3	PCI-E Mini Card
LVDS1	LVDS Panel Connector
INVERTER1	LVDS1 Panel Backlight +12V Power Source
LVDS2	LVDS2 48bit dual channel Connector
INVERTER2	LVDS2 Panel Backlight +12V Power Source
Key1	LVDS2 Key Pad Connector
PWR_BTN	Power Button
RST_BTN	Reset Button
CN1	LED Indicators +5V Power output

LABEL	FUNCTION
J4	4Pin 12V ATX Power Control Connector
JSPI1	8Pin SPI Pin Header
CF1	Compact Flash Slot

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

J_VLVDS1,2 : LVDS Voltage Selection	
J_VLVDS1,2	DESCRIPTION
1-2	+5V LVDS
2-3	+3.3V LVDS

JP1 : configure COM2 Mode	
JP1	DESCRIPTION
Short 1-2 (default)	RS - 232
Short 3-4	RS - 422
Short 5-6	RS - 485
Short 5-6 Short 7-8	RS-485 with RTS Control

JP2 : configure LVDS2 Panel Resolution Selection			
1-2	3-4	5-6	Description
Short	Open	Open	800x600
Open	Short	Open	1024x768
Short	Short	Open	1280x1024(Default)
Open	Open	Short	1366x768
Short	Open	Short	1920x1080

JP3 : configure COM1 Pin 9 Mode	
JP3	DESCRIPTION
Short 1-3	5V
Short 3-5	12V
Short 3-4 (default)	RI#

JCF1 : configure CF Card type	
JCF1	DESCRIPTION
OFF(default)	Slave
Short 1-2	Master

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

J_AUTOPWR1 : AT/ATX Power Mode setting	
PIN	DESCRIPTION
Short 1-2(default)	ATX Power Mode
2-3	AT Power Mode

VGA1 : 15-pin Female Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	RED	2	GREEN
3	BLUE	4	NC
5	GND	6	CRT_PLUG#
7	GND	8	GND
9	VCC	10	GND
11	NC	12	DDCDAT
13	HSYNC	14	VSYNC
15	DDCCLK		

USB3,4: USB Connector (USB_C45)			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	VCC	5	VCC
2	DATA-	6	DATA-
3	DATA+	7	DATA+
4	GROUND	8	GROUND

LAN1: RJ45 LAN Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	MDIA3-	5	MDIA1+
2	MDIA3+	6	MDIA2+-
3	MDIA2-	7	MDIA0-
4	MDIA1-	8	MDIA0+

KB/MS1: 6-pin Mini-DIN Keyboard/Mouse Connector	
PIN	DESCRIPTION
1	VCC
2	Mouse Data
3	Mouse Clock
4	Keyboard Data
5	Keyboard Clock
6	GND

COM4 : COM4Serial Port Connector	
PIN	DESCRIPTION
1	DATA CARRIER DETECT (DCD)
2	RECEIVE DATA (RXD)
3	TRANSMIT DATA (TXD)
4	DATA TERMINAL READY (DTR)
5	GND (GND)
6	DATA SET READY (DSR)
7	REQUEST TO SEND (RTS)
8	CLEAR TO SEND (CTS)
9	RING INDICATOR (RI)

USB1,2: Internal USB Connector (USB01, USB23, USB45)			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	VCC	2	GND
3	DATA-	4	DATA+
5	DATA+	6	DATA-
7	GND	8	VCC

SATA1 & SATA2 : Serial ATA Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	GND	2	TX+
3	TX-	4	GND
5	RX-	6	RX+
7	GND	8	N/C

SATA_PWR1,2 : Internal SATA Power Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	5V	2	GND

BAT1 : Battery Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	VCC_BAT	2	GND

CN2 : CN2 SMBUS Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	Ground	2	SMBDATA
3	SMBCLK	4	VCC

COM2 : COM2 Internal Serial Port Connector		
PIN	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	(GND)
10	N/C	
11	TXD485+	
12	TXD485#	
13	RXD485+	
14	RXD485#	

COM1: COM1 Internal Serial Port Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	GND

COM3: COM3 Internal Serial Port Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	GND

AUDIO1: HD Audio Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	LINE_OUTR	2	LINEIN_R
3	GND_AUDIO	4	GND_AUDIO
5	LINE_OUTL	6	LINEIN_L
7	GND_AUDIO	8	GND_AUDIO
9	MICIN	10	MICIN

FAN1,2 : Fan Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	FANIO1	2	+12V (PWM)
3	GND		

DIO1 : Digital Input / Output Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	Ground	2	VCC
3	Output 3	4	Output 2
5	Output 1	6	Output 0
7	Input 3	8	Input 2
9	Input 1	10	Input 0

CN3: PCI-E Mini Card Connector			
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-
37	GND	38	USB+
39	SATARXP	40	GND
41	SATARXN	42	N/C
43	N/C	44	RF_LINK#
45	SATATXN	46	BLUELED#
47	SATATXP	48	1.5V
49	GND	50	GND
51	N/C	52	VCC3

LVDS1: LVDS Connector			
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	NC	12	NC
13	GND3	14	GND4
15	NC	16	NC
17	VCC_LCD	18	VCC_LCD
19	VCC_LCD	20	VCC_LCD

INVERTER1 : 5-pin Header Inverter Connector	
PIN	DESCRIPTION
1	LCD_BKLTCTL
2	GROUND
3	+12V
4	GROUND
5	BACKLIGHT ENABLE

LVDS2: 48bit dual channel LVDS2 Connector			
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

INVERTER2 : 5-pin Header Inverter Connector	
PIN	DESCRIPTION
1	LCD_BKLTCTL
2	GROUND
3	+12V
4	GROUND
5	BACKLIGHT ENABLE

Key1 : 9-pin Header Key Pad Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	Red LED	2	NC
3	Green LED	4	Menu/Enter
5	Up	6	Down
7	Auto/Exit	8	Power
9	Ground		

PWR_BTN : Power Button			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	PWRBTSW-	2	GND

RST_BTN : Power Button			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	PM_RESET	2	GND

CN1: 6-pin LED indicators		
	PIN	DESCRIPTION
+5V Power Output	1	VCC
	2	GND
PWRLED	3	VCC
	4	GND
HDDLED	5	VCC
	6	-HDLED

J4 : 4Pin 12V ATX Power Control Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	GND	2	GND
3	12V	4	12V

JSPI1: 8Pin Header For programming SPI			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	VCC	2	GND
3	CS#	4	CLK
5	SO	6	SI
7	NC	8	NC

CF1 : CF Card Interface Slot			
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

Board Layout: Jumper and Connector Locations

