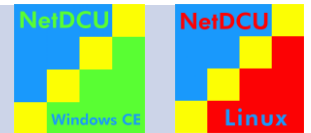


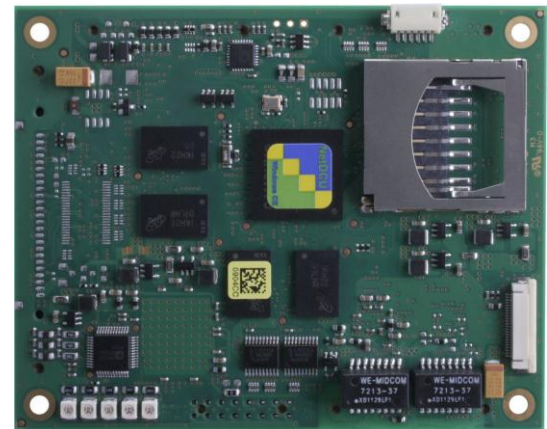
NetDCU14

Single Board Computer with Cortex™ A8



Characteristics

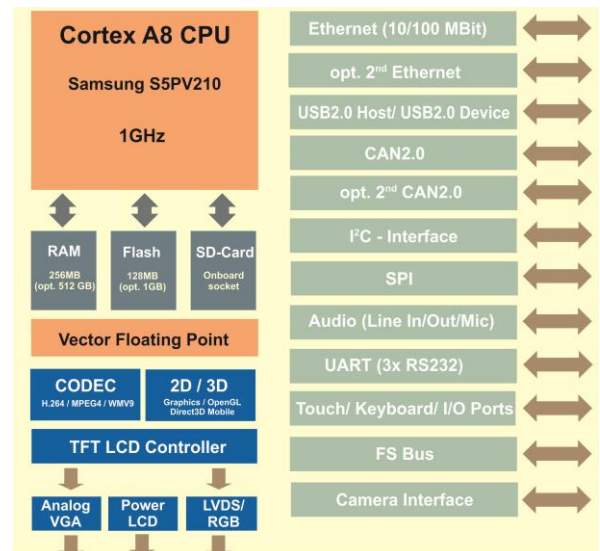
- Cortex™ A8 with 1GHz
- 128MB (1GB) Flash, 256MB (512MB)-RAM
- TFT LCD-Controller up to WXGA resolution (RGB/ LVDS) up to FullHD (analog VGA)
- 2D/3D and 5-Window Layer
- Multiformat CODEC (MPEG4, H.264, WMV9) H.264 1080p@30fps
- 1x (2x) Ethernet 10/100Mbit
- 1x USB2.0 Device, 1x USB2.0 Host
- 1x (2x) CAN2.0, 1x I²C, 1x SPI, 3x Serial (RS232), 1x SD-Card
- Audio Line IN/ OUT/MIC, camera interface (digital Video In), Touch-Controller
- Windows CE 6.0R3/ WCE7/ Linux
- 5V Low Power Design (<5W at operation)



Description

Many applications in the medical and industrial area demand for a powerful module to control displays, to connect controlling elements (touch panel, key pad, incremental encoder,...) and to communicate via modern interfaces (for example Ethernet, USB, CAN,...). NetDCU14 is based on a Cortex™ A8 CPU and it is compatible to NetDCU8/ 10 and 11. It has up to 512 Mbyte RAM and 128MByte (optional 1GB) NAND Flash, which is sufficient to boot WCE or Linux directly from Flash. The board offers interfaces like USB Host and Device, 2x LAN, RS232, 2x CAN, SPI, I²C, Audio (IN/ OUT), as well as touch panel (4 wire). It is also possible to connect a capacitive touch panel via I²C. The CPU offers functions such as 2D/ 3D, 5 Window-Layer, FPU and MPEG4/ H264 decode up to 1080p@30fps. DirectX, Open GL and Gstreamer are supported. With a power consumption of less than 5W, a NetDCU14 board can be operated without a fan or cooling element.

Block Diagram



On-Board Operating System



With customized WCE6.0R3/ WCE7 (Bootloader, Kernel, interface drivers, Silverlight, Mediaplayer, IE), a high-performance, real-time operating system is available. It comes with Compact Framework 3.5, which is an ideal base for software development.



F&S' Linux BSP (3.3., uboot, BSP, Buildroot, QT, GStreamer) already comes with a customized kernel and all interface drivers, including Source. It also has a Cross Compiler

Toolchain to develop own bootloaders, kernels, or further software.

Starterkit

The NetDCU14-SKIT is offered in two versions, RGB and LVDS. The RGB version consists of a base board with standard connectors, a cable set, access data to the download area (documentation and software), and a 7" WVGA display with touch and fitting connection cable. Additionally you choose one of the NetDCU14 (Premium) with RGB interface. The second version is set up the same but with a LVDS interface.

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Connector Assignment

J1 Power			J3 LCD				J4 FS-Bus		J5 Keyboard I/O				J12 LVDS 6Bit				J7 Touch/ Codec/ USB						
1	+RX1 Ethernet	21	VCC (+5V, In)	1	RE0	21	B5	41	GND	1	D0	1	GPIO8 (nIRQ)	21	IP3 (C4)	1	VLCD (out)	21	GND	1	LINEOUT L	21	HDM1 USB0
2	-RX1 Ethernet	22	VCC (+5V, In)	2	RE1	22	B4	42	GND	2	D1	2	GPIO7 (R7)	22	IP2 (C5)	2	VLCD (out)	22	GND	2	LINEOUT R	22	HDP1 USB0
3	RTS RS232	23	VBAT (+3V, In)	3	GE0	23	GND	43	ARED	3	D2	3	GPIO6 (R6)	23	IP1 (C6)	3	GND	23	VLCD	3	AGND	23	HDM2 USB1
4	RxD RS232	24	NC	4	GE1	24	VEEK	44	AGREEN	4	D3	4	GPIO5 (R5)	24	IP0 (C7)	4	GND	24	BL_ON	4	LINEIN L	24	HDP2 USB1
5	CTS RS232	25	GND	5	BE0	25	CLP	45	ABLUE	5	D4	5	GPIO4 (R4)	25	VCC (+5V, out)	5	LVDS_DATA0-	25	BL_PWM	5	LINEIN R	25	HPW1 USB0
6	TxD RS232	26	GND	6	BE1	26	FRP	46	AHCRT	6	D5	6	GPIO3 (R3)	26	VDD (+3.3V, out)	6	LVDS_DATA0+			6	AGND	26	HPW2 USB1
7	+TX1 Ethernet (+5V)			7	GND	27	M	47	AVCRT	7	D6	7	GPIO2 (R2)			7	GND			7	MICIN		
8	-TX1 Ethernet (+5V)			8	R1	28	LIP	48	NC	8	D7	8	GPIO1 (R1)			8	LVDS_DATA1-			8	MICGND		
9	VCC (+5V, out)			9	R0	29	DEN			9	VDD (out)	9	GPIO0 (R0)			9	LVDS_DATA1+			9	RxD3 RS232		
10	GND			10	G5	30	GND			10	RD	10	GPIO9 (C8)			10	GND			10	TxD3 RS232		
11	CAN-TX1			11	G4	31	VLCD			11	nCS	11	GPIO10 (C9)			11	LVDS_DATA2-			11	AD0		
12	CAN-RX1			12	G3	32	NC			12	ADE	12	RxD2 RS232			12	LVDS_DATA2+			12	AD1		
13	CAN-TX2			13	G2	33	NC			13	nIRQ	13	GPIO11 (C10)			13	GND			13	VCC (+5V, out)		
14	CAN-RX2			14	GND	34	GND			14	nRES (in)	14	TxD2 RS232			14	LVDS_CLK-			14	GND		
15	+RX2 Ethernet			15	B3	35	NC			15	PWM	15	GPIO12 (C11)			15	LVDS_CLK+			15	TOUCH-X+		
16	-RX2 Ethernet			16	B2	36	VCFL (Out)			16	GND	16	GND			16	GND			16	TOUCH-Y+		
17	+TX2 Ethernet			17	B1	37	R2			17	IP7 (C0)					17	-			17	TOUCH-X-		
18	-TX2 Ethernet			18	B0	38	R3			18	IP6 (C1)					18	-			18	TOUCH-Y-		
19	VCFL (in)			19	G1	39	R4			19	IP5 (C2)					19	GND			19	VDD (+3.3V out)		
20	NC			20	G0	40	R5			20	IP4 (C3)					20	GND			20	GND		

LCD Connection

NetDCU14	TFT	
	18 bit	24 bit
RE0		R0
RE1		R1
R0	R0	R2
R1	R1	R3
R2	R2	R4
R3	R3	R5
R4	R4	R6
R5	R5	R7
GE0		G0
GE1		G1
G0	G0	G2
G1	G1	G3
G2	G2	G4
G3	G3	G5
G4	G4	G6
G5	G5	G7
BE0		B0
BE1		B1
B0	B0	B2
B1	B1	B3
B2	B2	B4
B3	B3	B5
B4	B4	B6
B5	B5	B7
CLP		DCLK
LIP		HSYNC
FRP		VSYNC
M		DE
VLCD		LCD Supply Voltage

Technical Data

Power Supply:	+5V _{DC} ±5%
Power Consumption:	5W typ.
Keyboard:	8 x12 matrix keyboard
Digital I/O:	max. 21 E/A port lines
Touch-Panel:	4-Draht, analog resistive capacitive Touch via I ² C
Interfaces:	1x Ethernet 10/100 MBit (2x opt.) 3x RS232 (1x with RTS/CTS) 1x USB2.0 Host 1x USB2.0 Device 1x I ² C, 1x SPI 1x Camera Interface
TFT-LCD-Interface:	1x Audio (Line In/Out/Mic) TFT up to WXGA (1280x800, 16 Mio. Colors via RGB; 64k Colors via LVDS)
Screen:	Analog VGA up to FullHD
RAM:	256 MB-RAM (512 MB opt.)
Program Memory:	128 MB Flash (1GB opt.)
Temperature Range:	0°C - +70°C (-25°C - +85°C opt.)
Dimension:	100mm x 80mm x 11mm (l x b x d)
Weight:	about 50g

Standard Versions/ Order Notations

NetDCU14-ANC-WCE (Standard)

256MB-RAM, 128MB Flash, Audio, Ethernet, CAN, 1GHz, 0°C+70°C, Windows CE 6.0R3 Core

NetDCU14-ANC-LIN (Standard)

256MB-RAM, 128MB Flash, Audio, Ethernet, CAN, 1GHz, 0°C+70°C, Linux

NetDCU14-ANCL1-WCE (Standard)

256MB-RAM, 128MB Flash, Audio, Ethernet, CAN, LVDS, 1GHz, 0°C+70°C, Windows CE 6.0R3 Core

NetDCU14-ANCL1-LIN (Standard)

256MB-RAM, 128MB Flash, Audio, Ethernet, CAN, LVDS, 1GHz, 0°C+70°C, Linux

NetDCU14-512DAN2C2L1V-WEC7 (Premium)

512MB-RAM, 128MB Flash, Audio, 2x Ethernet, 2x CAN, LVDS 6Bit, VGA, 1GHz, 0°C+70°C, Windows CE7 C7E license

NetDCU14-512DAN2C2L1V-LIN (Premium)

512MB-RAM, 128MB Flash, Audio, 2x Ethernet, 2x CAN, LVDS 6Bit, VGA, 1GHz, 0°C+70°C, Linux

NetDCU14-SKIT-WCE/-LIN (RGB version) and NetDCU14-SKIT2-WCE/-LIN (LVDS version)

Base board, cable kit, display and access data to documentation and software, additionally one NetDCU14 (Premium version) with WCE (access to WEC7) or Linux

Attention: Special versions only for order quantities of at least 500 pieces!

Order Key

NetDCU14-512D1FN2CV-WEC7

RAM	Flash	Audio	Ethernet	CAN	RGB/LVDS	VGA	Temp	System
blank 256 MByte	blank 128 MByte	blank no Audio	blank no Ethernet	blank no CAN	blank RGB	blank no VGA	blank 0°C-70°C	WCE WindowsCE 6.0
512D 512 MByte	1F 1 GByte	A Audio	N 1x Ethernet	C 1x CAN2.0	L1 6bit LVDS	V VGA	I -25°C-85°C	LIN Linux
			N2 2x Ethernet	C2 2x CAN2.0				WEC7 WEC7

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