

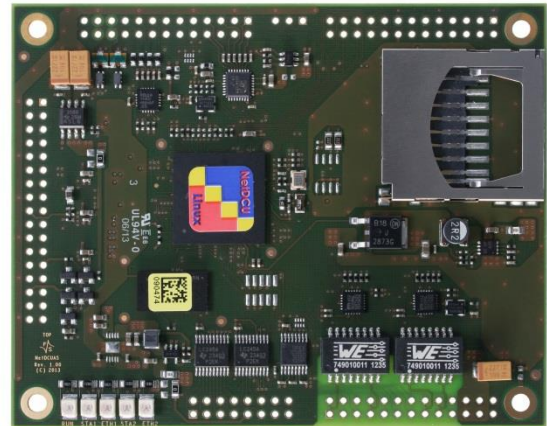
NetDCUA5

Single Board Computer with Cortex™-A5 & Cortex™-M4



Characteristics

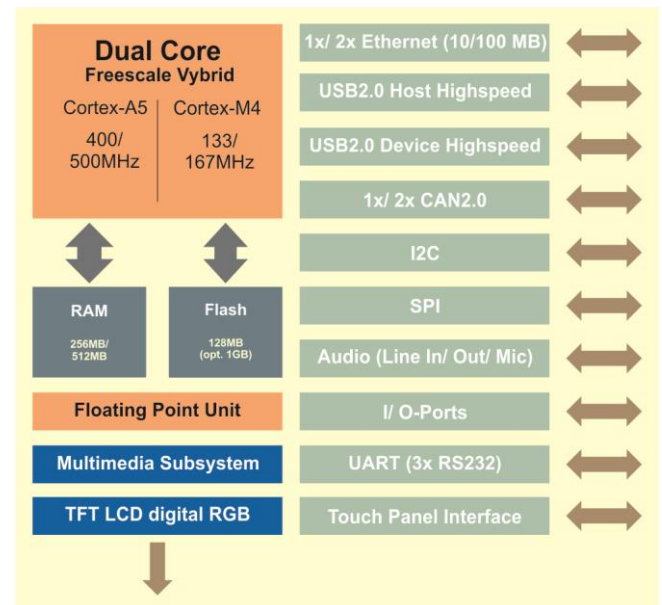
- Freescale Dual-Core Vybrid CPU Cortex-A5 with 400/ 500MHz & Cortex-M4 with 167MHz
- 128MB (1GB) Flash, 256MB (512MB) RAM
- TFT LCD Controller up to SVGA resolution
- 2x Ethernet 10/ 100MBit
- 1x USB 2.0 Device
- 1x USB 2.0 Host
- 2x CAN 2.0, 1x I²C, 1x SPI
- 3x Serial (RS232)
- 1x SD Card
- Audio Line IN/ OUT/ MIC
- 2x Analog In
- Touch Controller
- WCE 6.0 R3/ WEC 2013/ Linux



Description

Many applications in the industrial and medical field demand for a powerful module, which can control displays, can be connected with control elements (touch panel, keypad, incremental encoder,...) and can communicate via modern interfaces (Ethernet, USB, CAN,...). The NetDCUA5 is based on a Freescale Dual-Core Vybrid CPU and includes a Cortex-A5, as well as a Cortex-M4 CPU. This CPU is available for at least 10 years. The board offers many interfaces, inter alia a RGB interface and a touch panel (4-wires) interface. It is possible to connect a capacitive touch panel via I²C. You may connect TFT LCD Controllers up to SVGA resolution. NetDCUA5 is pin compatible to NetDCU8 and to NetDCU10.

Block Diagram



On-Board Operating System



The customized WCE 6.0 R3/ WEC 2013 (Bootloader, Kernel, interface drivers, Mediaplayer, IE) offers a powerful real-time operating system. Together with Compact Frame-work 3.5 it is the perfect base for software development.



The F&S Linux BSP (3.3., uboot, BSP, Buildroot, QT, GStreamer) contains a customized kernel and all interface drivers incl. Source. A Cross Compiler Toolchain is offered, to develop own bootloaders, kernels or further software.

Starterkit

The NetDCUA5-SKIT is available with either WCE 6.0/ WEC 2013 or Linux. The SKIT consists of a base board with standard connectors, a cable kit, access data to the download area (documentation and software) and a 7" WVGA display with (4-wire) touch panel and connection cable. The starterkit also includes a 4-hour workshop. A forum with 2000+ registered customers offers example programs and is always online for support.

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Connector Assignment

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

Add-Ons

TFT & Cap. Touch

7" WVGA Display with LVDS interface and fitting connection cable (25pol connector), furthermore, the display has a capacitive touch panel

Displaykit LVDS

7" WVGA Display with LVDS interface and fitting connection cable (25pol connector)

Displaykit RGB

7" WVGA Display with RGB interface and resistive Touchpanel, fitting connection cable, display adapter and touch cable

Safe Filesystem (F3S)

It offers transaction safety on file level and therefore guarantees the consistency of the data, even in case of a blackout or other interferences while writing.

UpDate Software

This program package allows a safe and easy update of the application program and the operating system via USB Stick or SD Card. Blackouts and other interferences during the update are considered.

Joystick Extension

Circuit to connect up to 4 joysticks (incremental encoders). This external circuit is connected via I²C Bus.

Technical Data

Power Supply:

+5V_{DC} ±5%

Keyboard:

8 x12 matrix keyboard

Digital I / O:

max. 21 I / O ports

Touch Panel:

4 wires, analogue resistive, capacitive Touch via I²C

Interfaces:

1x Ethernet 10/ 100Mbit (2x opt.)
3x RS232 (1x with RTS/ CTS)

1x USB 2.0 Host

1x USB 2.0 Device

1x I²C

1x SPI

1x CAN2.0 (2x opt.)

1x SD-Card Slot

1x Audio (Line In/ Out/ Mic)

1x FS-BUS (ADR/ DATEN)

TFT up to SVGA (800x600)

16Bit colors via RGB

256 MB RAM (512 MB opt.)

128 MB Flash (1GB opt.)

Vybird CPU Cortex™ A5-500MHz

(400MHz opt.) & Cortex™ M4-

167MHz (opt.)

0°C - +70°C (-25°C - +85°C opt.)

100mm x 80mm x 11mm

(l x b x d)

ca. 50g

TFT-LCD Interface:

RAM:

Program Memory:

Processor:

Temperature Range:

Size:

Weight:

Standard Versions/ Order Notations

NetDCUA5-V1-WCE

256MB RAM, 128MB Flash, Ethernet, CAN, Cortex-A5 - 500MHz,
0°C - +70°C, WCE 6.0

NetDCUA5-V1-LIN

256MB RAM, 128MB Flash, Ethernet, CAN, Cortex-A5 - 500MHz,
0°C - +70°C, Linux

NetDCUA5-V1-W2013

256MB RAM, 128MB Flash, Ethernet, CAN, Cortex-A5 - 500MHz,
0°C - +70°C, WEC 2013

Minimum Order Quantity for Special Versions: 300 pieces (in one shipment)

Standard Versions/ Order Notations

NetDCUA5-V1-WCE

256MB RAM, 128MB Flash, Ethernet, CAN, Cortex-A5 - 500MHz,
-25°C - +85°C, WCE 6.0

NetDCUA5-V1-LIN

256MB RAM, 128MB Flash, Ethernet, CAN, Cortex-A5 - 500MHz,
-25°C - +85°C, Linux

NetDCUA5-SKIT-WCE/ -LIN

Basisboard, NetDCUA5-V1-WCE/ -LIN, cable kit, access data to documentation and software, 7" WVGA TFT with resistive touch panel and connection cable/ adapter, incl. 4-hour workshop.

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