

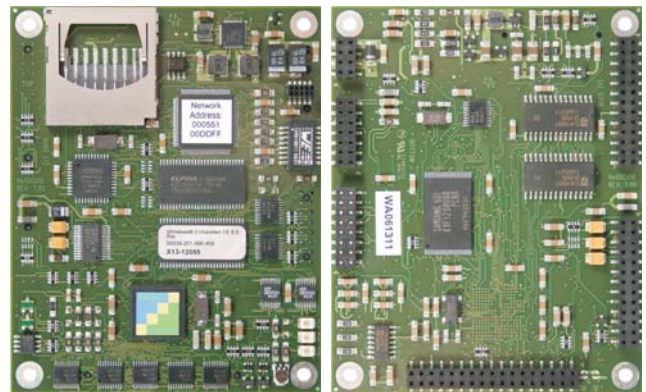
NetDCU10

Single Board Computer with Samsung ARM9-CPU



Characteristics

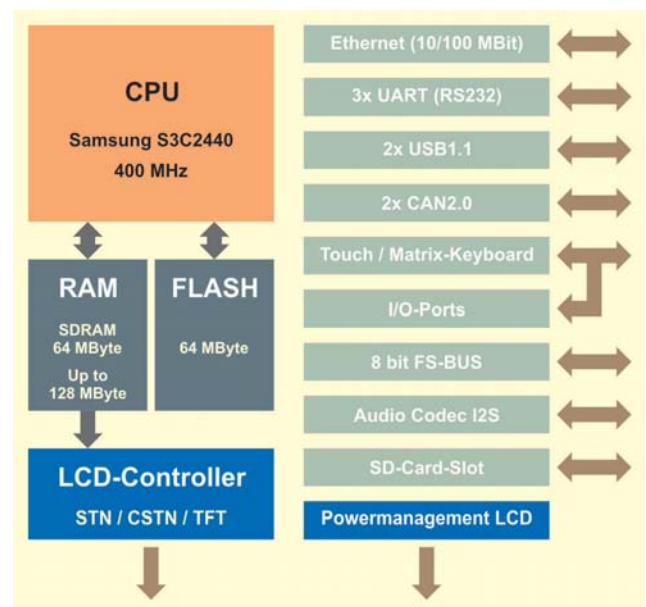
- Samsung S3C2440-400 (400MHz)
- 64MB Flash, 64MB SDRAM
- LCD-interface to STN-, CSTN- and TFT-LCD's up to SVGA-resolution
- Low Power Design (<1W at operation)
- 3x RS232
- Ethernet 10/100MBit
- 1x USB1.1 Host, 1x USB1.1 Host / Device
- Audio, Touch-Controller, Matrixkeyboard
- 2x CAN2.0 interface
- max. 21 I/O lines
- SD-Card-Slot
- +5V single power supply



Description

High CPU power in combination with low power consumption and many usefull interfaces are the benefits of the NetDCU10. CPU from Samsung, S3C2440 with 400MHz is used. Power saving is achieved by reducing CPU's clock speed and a dynamic power managment. This enables battery power applications with NetDCU10. The double integrated CAN2.0-controller forms a particular feature. The integration of CAN2.0-interfaces on board reduces system-costs considerable. Flexible and easy configurable LCD-Display-Interfaces are the special benefits of F&S Single Board Computers. Additional interfaces like Touchpanel-, Matrix-keyboard-, RS232- and Ethernet-interface offer NetDCU10 as a complete solution. Because of selected curcuietry and the resulting long term availability, the NetDCU10 is specifically suited for industrial and medical applications.

Block diagram



On-Board Operating System



Windows Embedded CE 5.0 is supporting design of application software in C++, C# and VB.NET.

There is an easy way from PC to an embedded system like NetDCU10. Solving future assignments with TC/IP, DCOM and XML is possible.



Embedded Linux offers on the NetDCU10 a complete Linux-cernel with graphical user interface. The provided development tool with graphic operation offers a lot of tools, Linux-cernel, bootloader, libraries and system-programs.

Starter-kit

To make your start up even easier, there is offered a starter-kit. It contains a carrier board with standard connectors so the NetDCU10 can easily be connected to the development computer or the LAN network. The starter-kit also includes a 512MB SD-Card, 512MB USB-Stick, multi-card-reader for PC, all necessary cables and a CD-ROM with documentation, tools and SDK (Windows CE / Linux).

For an simpler start up you can also take advantage of our workshop (4 hours in Stuttgart). You will get all information about hard- and software of NetDCU10, Ethernet, Telnet, Ping, Arp & Co and debugging to start development immediately.

Connector assignment

J1 Power		J2 RS232		J3 LCD		J4 Parallel		J5 Keyboard I/O		J7 Touch / Codec / USB					
1	VCFL (In)	1	-RxD Ethern.	1	GND	18	VEEK	1	GPIO8 (nIRQ)	18	IP6 (C1)	1	LINEOUT L	18	TOUCH-Y-
2	RS485+	2	+RxD Ethern.	2	R1	19	CLP	2	GPIO7 (SPH-CLK)	19	IP5 (C2)	2	LINEOUT R	19	VDD (+3.3V)
3	VCC (+5V)	3	RxD1 RS232	3	R0	20	FRP	3	GPIO6 (SPH-MOSI)	20	IP4 (C3)	3	AGND	20	GND
4	VCC (+5V)	4	RTS1 RS232	4	G5	21	M	4	GPIO5 (SPH-MISO)	21	IP3 (C4)	4	LINEIN L	21	HDM0 (USB0)
5	VBAT (+3V)	5	TxD1 RS232	5	G4	22	LIP	5	GPIO4 (R4)	22	IP2 (C5)	5	LINEIN R	22	HDP0 (USB0)
6	RS485-	6	CTS1 RS232	6	G3	23	DEN	6	GPIO3 (R3)	23	IP1 (C6)	6	AGND	23	HDM1 (USB1)
7	GND	7	-TxD Ethernet	7	G2	24	GND	7	GPIO2 (R2)	24	IP0 (C7)	7	MICIN	24	HDP1 (USB1)
8	GND	8	+TxD Ethernet	8	GND	25	VLCD	8	GPIO1 (R1)	25	VCC (+5V)	8	MICBIAS	25	HPW0 (USB0)
		9	GND	9	B3	26	-VEE	9	GPIO0 (R0)	26	VDD (+3.3V)	9	RxD3 RS232	26	HPW1 (USB1)
		10	VCC (+5V)	10	B2	27	VADJ	10	GPIO9 (I2C-DATA)			10	TxD3 RS232		
		11	CAN-RxD1	11	B1	28	GND	11	GPIO10 (I2C-CLK)			11	AD0		
		12	CAN-TxD1	12	B0	29	+VEE	12	RxD2 RS232			12	AD1		
		13	CAN-RxD2	13	G1	30	VCFL (Out)	13	GPIO11 (C10)			13	VCC (+5V)		
		14	CAN-TxD2	14	G0	31	R2	14	TxD2 RS232			14	GND		
				15	B5	32	R3	15	GPIO12 (C11)			15	TOUCH-X+		
				16	B4	33	R4	16	GND			16	TOUCH-Y+		
				17	GND	34	R5		IP7 (C0)			17	TOUCH-X-		

LCD-connection

Net-DCU10	Mono STN		Color STN	TFT	
	4 bit	8 bit	Single	12 bit	18 bit
R0					R0
R1					R1
R2				R0	R2
R3				R1	R3
R4				R2	R4
R5				R3	R5
G0		D5 (LD1)	D5		G0
G1		D4 (LD0)	D4		G1
G2				G0	G2
G3				G1	G3
G4				G2	G4
G5				G3	G5
B0	D3	D3 (UD3)	D3		B0
B1	D2	D2 (UD2)	D2		B1
B2	D1	D1 (UD1)	D1	B0	B2
B3	D0	D0 (UD0)	D0	B1	B3
B4		D7 (LD3)	D7	B2	B4
B5		D6 (LD2)	D6	B3	B5
CLP	CL2	CL2	CP	DCCLK	DCCLK
LIP	CL1	CL1	LOAD	HSYNC	HSYNC
FRP	FLM	FLM	FRM	VSYNC	VSYNC
M	M	M	M	DE	DE
DEN	nDISPOFF	nDISPOFF	nDISP	---	---

Technical data

<p>Power supply: +5V_{DC} / ±5%</p> <p>Power consumption: < 200mA (ohne Display, VEE aus)</p> <p>Contrastvoltage (V_{EE}): ±5V ... ±28V</p> <p>Touch-Screen: 4 wire, analog resistive touchpanel</p> <p>Keyboard: Matrix-keyboard 8 x 12</p> <p>Digital I/O: max. 21 I/O-port lines alternative matrix-keyboard 8 bit FS-BUS (extension bus)</p> <p>Interfaces: 1x SD-Card-Slot Audio Codec I2S 3x RS232 (1x mit RTS/CTS, 1x RS232/RS485) 2x USB1.1 (1x Host/Device) 1x Ethernet 10/100 MBit 2x CAN2.0 1x I2C, 1x SPI</p> <p>LCD-interface: STN: up to 640 x 480 pixel, single/dual scan 16 shades of grey CSTN: up to 640 x 480 pixel, single/dual scan 16/256 colours of 65536 TFT: up to 800 x 600 pixel 256/65536 colours</p> <p>RAM: 64 MByte SDRAM Opt. 128 MByte</p> <p>Program memory: 64 MByte Flash</p> <p>Processor: Samsung S3C2440 (400MHz)</p> <p>Temperature range: 0°C ... 70°C Opt. -25°C ... 85°C</p> <p>Dimension: 100mm x 80mm x 11mm (l x b x h)</p> <p>Weight: ca. 60 gr</p>	
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Order notation

NetDCU10-ANC2K-WCE

64MB SDRAM, 64MB Flash, Audio, Ethernet, 2xCAN2.0, VEE, Windows CE 6.0

NetDCU10-ANC2K-LIN

64MB SDRAM, 64MB Flash, Audio, Ethernet, 2xCAN2.0, Embedded Linux

NetDCU10-SKIT-WCE

Starter-kit with NetDCU10-ANC2K-WCE, carrier-board, cables, 512MB SD-Card, 512MB USB-Stick, multi-card-reader, SDK, documentation

NetDCU10-SKIT-LIN

Starter-kit with NetDCU10-ANC2K-LIN, carrier-board, cables, 512MB SD-Card, 512MB USB-Stick, multi-card-reader, SDK, documentation

NetDCU-WS

Quick-start-workshop for NetDCUx und Windows Embedded CE

Order key

NetDCU10-128D32FANC2K-WCE

SDRAM	Flash	Audio	Ethernet	CAN	VEE	System
32D 32 MByte	32F 32 MByte	blank no Audio	blank no Ethernet	blank no CAN	blank no VEE	WCE Windows CE 5.0
blank 64 MByte	blank 64 MByte	A Audio	N Ethernet	C 1x CAN2.0	K VEE	LIN Embedded Linux
128D 128 MByte				C2 2x CAN2.0		

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