Embedded Solutions

SC13c - 6U Busless PowerPC SBC with PMCs

- **PowerPC MPC8245/300MHz**
- **6U form factor**
- **512MB DRAM, CompactFlash**
- **Graphics via PMC**
- **Dual 10/100Mbit Fast Ethernet**
- **4 COMs, USB, IDE, keyboard/mouse**
- **2 PMC slots**

The SC13 is a single-board computer for embedded applications based on the Kahlua II PowerPC, offering different types of mezzanine slots for industrial and computer I/O extensions.

The SC13 comes with the MPC8245 PowerPC with 300MHz clock frequency and local 32-bit/33-MHz PCI data bus.

It is a complete state-of-the-art SBC offering DRAM, Flash and CompactFlash memory, dual Fast Ethernet, 4 COMs, USB, IDE and keyboard/mouse interfaces as well as an optional onboard hard disk.

In addition, the SC13c can be equipped with PMC mezzanine cards. PMCs may be used particularly for intelligent telecom I/O.

The modular combination of I/O functionality on a single-board computer allows to build up tailored control systems which appear as customized solutions based on standard components.

Depending on the kind of I/O requirements, further standard versions of SC13 are availabe for other mezzanine standards.

Alternatively, the SC13c stand-alone SBC is available with a VME interface (A12c) or with a system-slot CPCI interface (D3c).

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Technical Data

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CPU
- PowerPC
- MPC8245
- 300MHz

Memory
- Level 1 Cache integrated in MPC8245
- SO-DIMM slot for up to 512MB SDRAM
- 100MHz memory bus operation
- Flash 2MB
- 8-bit data bus
- Serial EEPROM 2KB for factory settings
- CompactFlash (TM) card interface for Flash ATA (true IDE) via on-board IDE

Interfaces
- Two 10/100Mbits/s Ethernet channels
- 82559ER controller
- RJ45 at front panel with two LEDs
- One UART RS232 serial interface (COM1)
- 16-byte send/receive buffer
- RJ45 at front panel
- One UART (COM2)
- 16-byte send/receive buffer
- Physical interface using SA adapter via 10-pin ribbon cable on I/O connector
- RS232..RS485, isolated or not: for free use in system (e. g. cable to front)
- Two MPC8245 UARTs
- Accessible via I/O connector
- IDE port for hard disk drives
- Drive can be connected via ribbon cable or mounted directly on the CPU board using MEN's adapter kit
- Only one CompactPCI slot needed even with hard disk
- Keyboard/mouse
- PS/2 compatible
- External adapters for line drivers required
- USB port
- External line drivers

Local PCI Bus
- PCI Spec. 2.2 compliant
- 32-bit data bus, 33MHz, 3.3V

Mezzanine Extensions
- SC13a: three PC-MIPs Type I/II on local PCI bus
- Compliant with PC-MIP specification
- SC13b: three M-Modules
- Compliant with M-Module standard
- Characteristics: D16, D32, A08, A24, INTA, INTC
- SC13c: two PMCs
- Compliant with PMC standard IEEE 1386.1

Miscellaneous

- Serial real-time clock with integrated 56-byte NVRAM
- Serial hardware watchdog in supervisory circuit
- Power supply via onboard 4-pin power connector
- Temperature sensor
- Hex switch for user settings
- User LEDs (external)

Electrical Specifications
- Supply voltage/power consumption:
- +5V (4.85V..5.25V), 1.65 A typ.
- ±12V for mezzanines only, tbd.
- MTBF: 63,000h @ 50°C

Mechanical Specifications
- Dimensions: standard double Eurocard, 233.3mm x 160mm
- Weight (without mezzanines and accessories):
- SC13a: 242g
- SC13b: 240g
- SC13c: 237g

Environmental Specifications
- Temperature range (operation):
- 0..+60°C or -40..+85°C
- Airflow: min. 10m³/h
- Temperature range (storage): -40..+85°C
- Relative humidity (operation): max. 95% non-condensing
- Relative humidity (storage): max. 95% non-condensing
- Altitude: -300m to + 3,000m
- Shock: 15g/11ms
- Bump: 10g/16ms
- Vibration (sinusoidal): 2g/10..150Hz

Safety
- PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers
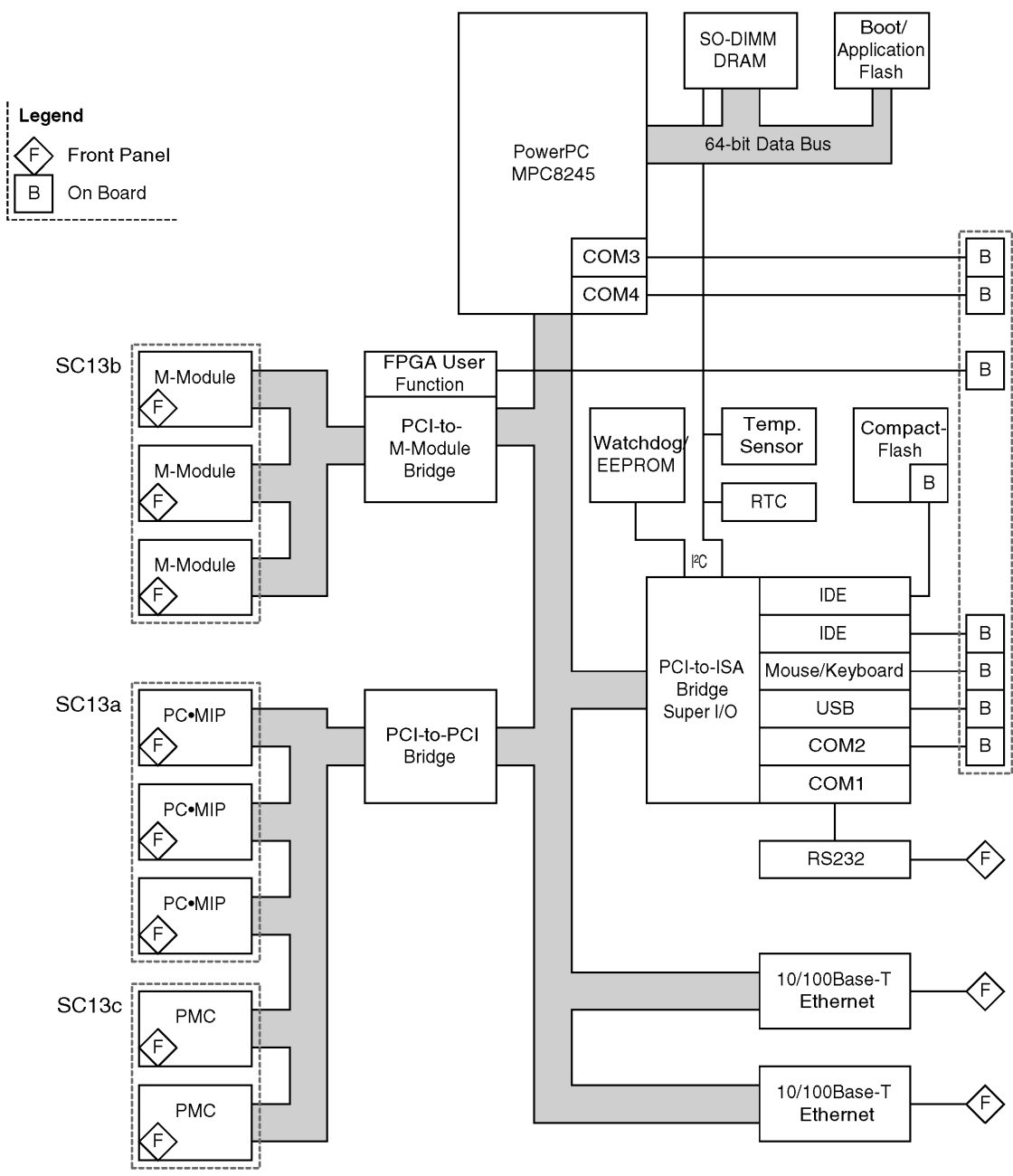
EMC
- Tested according to EN 55022 (radio disturbance), IEC1000-4-2 (ESD) and IEC1000-4-4 (burst) with regard to CE conformity

Software Support
- VxWorks
- OS-9
- Linux
- MENMON

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Diagram

3

Related Products

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Standard Hardware

08SC13A00	SC13a, busless single-board computer (6U), CPU MPC8245-300MHz, 2MB Flash, 3 PC-MIP slots, 0..+60°C
08SC13A01	SC13a, busless single-board computer (6U), CPU MPC8245-300MHz, 2MB Flash, 3 PC-MIP slots, -40..+85°C
08SC13B00	SC13b, busless single-board computer (6U), CPU MPC8245-300MHz, 2MB Flash, 3 M-Module slots, 0..+60°C
08SC13B01	SC13b, busless single-board computer (6U), CPU MPC8245-300MHz, 2MB Flash, 3 M-Module slots, -40..+85°C
08SC13C00	SC13c, busless single-board computer (6U), CPU MPC8245-300MHz, 2MB Flash, 2 PMC slots, 0..+60°C
08SC13C01	SC13c, busless single-board computer (6U), CPU MPC8245-300MHz, 2MB Flash, 2 PMC slots, -40..+85°C

Accessories

05A012-00	Hard disk 2.5", 9.5mm adapter for A12, D3, SC13
05F006-00	RS232 interface cable 9-pin D-Sub plug to 8-pin RJ45 plug, 2m
05M000-17	25 mounting screw sets to fix M-Modules on carrier boards
You can download the data sheet for hard disk 0710-0012 from MEN's website. --> Download	
0710-0009	IDE hard disk 2.5", 9.5mm, 20GB; for mounting on-board (harddisk mounting kit may be additionally required)
0710-0012	Industrial IDE hard disk 2,5", 40GB, 24 hours/7 days, 0..+60°C; for on-board mounting (hard disk mounting kit may be required additionally)
0751-0006	CompactFlash card, 512MB, Type I, 0..+60°C
0751-0007	CompactFlash card, 512MB, Type I, -40..+85°C
0751-0008	CompactFlash card, 64MB, Type I, 0..+60°C
0751-0009	CompactFlash card, 128MB, Type I, 0..+60°C
0751-0012	CompactFlash card, 256MB, Type I, 0..+60°C
0751-0013	Compact Flash card, 64MB, -40..+85°C
0751-0014	Compact Flash card, 128MB, -40..+85°C
0751-0018	CompactFlash card, 256MB, Type I, -40..+85°C
0752-0052	64MB DRAM 0..+60°C for 08SC13x00
0752-0053	128MB DRAM 0..+60°C for 08SC13x00

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0752-0054	256MB DRAM 0..+60°C for 08SC13x00
0752-0055	512MB DRAM 0..+60°C for 08SC13x00
0752-0130	512MB DRAM -40..+85°C for 08SC13x01
08AD67-01	I/O extension 19" 6U 4HP incl. 1 USB connector, 1 keyboard connector, 1 mouse connector; prepared for 3 SA adapters, prepared for HDD 2.5", reset, abort, 0..+60°C
08SA01-00	Serial interface adapter, RS232, not optically isolated, 0..+60°C
08SA02-00	Serial interface adapter, RS422/485, half duplex, optically isolated, 0..+60°C
08SA02-01	Serial interface adapter, RS422/485, full duplex, optically isolated, 0..+60°C
08SA02-07	Serial interface adapter, RS422/485, full duplex, optically isolated, temperature range: -40..+85°C
08SA03-00	Serial interface adapter, RS232, optically isolated, 0..+60°C
08SA03-01	Serial interface adapter, RS232, optically isolated, -40..+85°C
08SA04-00	Serial interface adapter, TTY, optically isolated, 0..+60°C

For more functions realized with SA adapters, see the listing on MEN's website. You can also view our SA adapter compare chart for a quick overview of different functions. Please contact sales to make sure that these SA adapters can be used in the board configuration you are looking for.

Software

10ABMX-20	ELinOS V.3.0 - Embedded Linux incl. RTAI real-time extension for PowerPC, English version. The Sysgo Development Kit includes the board support packages (BSPs) for MEN cards F1N, B11, A12, A15, D3, SC13, F6, EM04/N and PP01. The package includes 1 year ELinOS development support and all ELinOS updates and upgrades during this period for free. It additionally includes the BSP support for MEN hardware by MEN. --- N.B.: For correct handling of the ELinOS software support it is mandatory to sign and return the enclosed support agreement directly to Sysgo! The Sysgo support agreement is automatically prolonged for another year if not cancelled 3 months prior to expiration.
10ABMX-21	ELinOS V.3.0 - Embedded Linux incl. RTAI real-time extension for PowerPC, German version. The Sysgo Development Kit includes the board support packages (BSPs) for MEN cards F1N, B11, A12, D3, SC13, F6, EM04/N and PP01. The package includes 1 year ELinOS development support and all ELinOS updates and upgrades during this period for free. It additionally includes the BSP support for MEN hardware by MEN. --- N.B.: For correct handling of the ELinOS software support it is mandatory to sign and return the enclosed support agreement directly to Sysgo! The Sysgo support agreement is automatically prolonged for another year if not cancelled 3 months prior to expiration.

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Related Products

10F001N01	OS-9(000) V.2.2/3.x: BSP for F1N, B11, A12, D3, SC13, Kahlua Box (object code, MEN)
10F001N02	OS-9(000) V4.2: BSP for F1N, B11, A12, A15, D3, SC13, Kahlua Box (object code, MEN)
10F001N40	QNX® 6 BSP for F1N, B11, A12, A15, D3, SC13, Kahlua Box (object code, MEN)
10F001N60	VxWorks® V.5.4..5.5 / Tornado 2.0..2.2 BSP for F1N, B11, A12, D3, SC13, Kahlua Box, A15

This board is an MEN product running Sysgo's ELinOS Embedded Linux. Sysgo provides full support for MEN hardware. Please contact www.sysgo.de.

QNX® software for this MEN board is available from QNX® (www.qnx.com). For QNX® BSP and driver support provided by MEN please refer to the ordering numbers below.

VxWorks® software for this MEN board is available from WindRiver Systems. For VxWorks® BSP and driver support provided by MEN please refer to the ordering numbers below.

For OS-9 BSP and driver support provided by MEN please refer to the ordering numbers below.

XiBase9, a graphical user interface for Linux and OS-9 from XiSys, is running on the MEN graphics controller PC-MIP and PMC modules P1, P17 and P517 in combination with the PowerPC-based Single-Board Computers A11, A12, D3, F1N, B11 and SC13 (further SBCs on request). For more information, purchase and support please apply to www.xisys.de.

14A012-00	MENMON (Firmware) for A12, D3, SC13 (object code)

Documentation

20SC13-00	SC13 user manual
21APPN003	Application Note: Using P1/P501 Graphics on MEN 824x/ALI boards under ELinOS

For the most up-to-date ordering information and direct links to other data sheets and downloads, see the SC13c online data sheet under www.men.de. --> Click here!

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