

HiCO.SH4

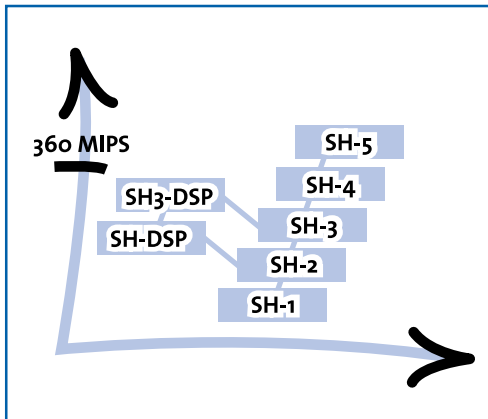
emtrion



Highlights

- Embedded Computer with high-performance Hitachi SuperH SH4 processor >250MIPS
- Low power: only 1.5 Watts; no heat sink necessary!
- PC/104 Carrier Board
- Starter kits
- Enclosure solutions
- Application-specific development based on SuperH

Extremely cool:
HiCO.SH4
Embedded Computer
with Hitachi SuperH SH4



Hitachi's SuperH Family

In order to select the right modules for a successful embedded PC concept, it's important that the processor manufacturer has a leading technological position and that development support is provided with an upward compatible roadmap!

Hitachi's SuperH family satisfies both these requirements and offers even more benefits: an above average long-term availability of individual derivatives and an extremely low power dissipation at a processing power of 10 (SH1) to 1000 MIPS (SH5).

1

SuperH SH4

The currently available SH-4 derivative provides a processing power of up to 360 MIPS, an integrated FPU (floating point unit) with up to 1.4 GFLOPS and enhanced graphics support and it is therefore ideal for embedded applications with multimedia requirements. This is impressively demonstrated in products such as the Dreamcast game console from Sega and in the latest generation of car navigation systems.

PC System without an x86 Processor?

The HiCO.SH4 is a high-performance low-energy consumption embedded computer that combines the sophisticated technology of handheld PCs, also known as Pocket PCs, with industrial quality. Standard real-time operating systems can also be used.



2



PC/104 Module with Hitachi SuperH SH4

In the case of the HiCO.SH4, the highest processing performance and lowest power consumption mean: more than 250MIPS at 1.5Watts! The HiCO.SH4 consists of a CORE module and a PC/104 carrier board. This modular concept allows the CORE module to be used as a self-contained unit, which is particularly useful for cost optimization in application specific high-volume production models. Use of the PC/104 carrier board allows custom adaptation for low to medium volumes, without incurring the additional risk and cost of redesigning the processor module.

The HiCO.SH4-CON module provides standard connectors for all the available interfaces which can be used not only during initial setting up in the lab but also in full-scale production units.

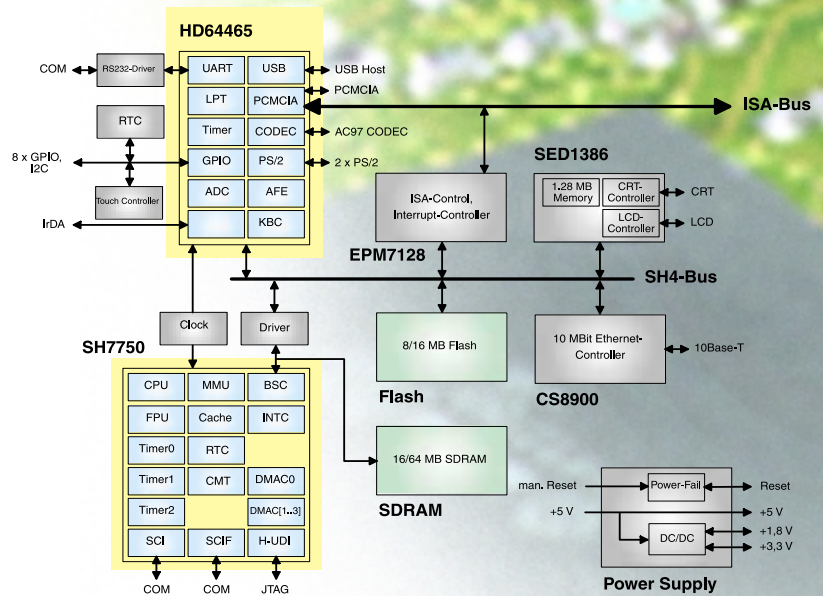
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The Embedded Computer

The CORE module HiCO.SH4-CORE uses a SuperH SH4 (HD6417750-167) processor with flash memory and RAM. The module also has USB, PS/2 Keyboard/Mouse, Audio Codec and serial interfaces, VGA graphics for LCD/CRT, Ethernet interface, a bus interface corresponding to the ISA bus and a fine-pitch connector for mounting the module onto any carrier board (e.g. HiCO.SH4-BASE).

The HiCO.SH4-BASE carrier board supplements the CORE-Module to a PC/104 unit, offering a PC/104 interface for expansion, a compact flash socket, sockets for diverse LCD displays and an audio interface.

The HiCO.SH4-CON adapter board is useful for interfacing with commercial PC components and it provides standard connectors for various interfaces.



4

Software

The use of standard real-time operating systems and development environments ensures simple programming. Hitex can optionally provide a preinstalled operating system version with a Board Support Package, enabling the user to immediately begin application development.

Some of the software solutions available for Hitachi's SuperH processor family include:

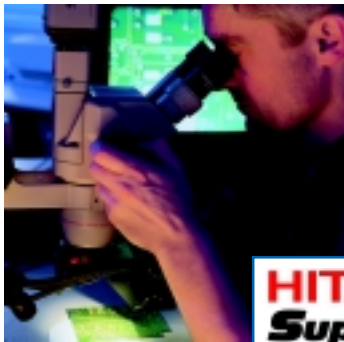
- > Microsoft Windows® CE
- > WindRiver VxWorks
- > Linux / Embedded Linux
- > GNU-Compiler/Debugger
- > Greenhills
- > Microware OSg



5

System Integration –Custom Solutions

Do you require individual solutions or services to match your particular needs? Why not use the extensive know-how of Hitex Automation's system engineers, particularly concerning the SuperH family and low-level programming (e.g. driver development and operating system adaptation) to implement your unique product ideas? Our knowledge can be used optimally to meet your requirements for tailor made training, consultation or development services. Our sales team would be pleased to advise you, of course in the strictest confidence.



6

Jumpstart

emtrion offers extensive starter kits and accessories for the HiCO.SH4 which aid quick setting up in the lab including setting up a development environment.

Take our starter kit for Windows® CE as an example. This kit includes a HiCO.SH4 embedded computer with preinstalled and adapted Windows® CE kernel, the Microsoft development environment with the Microsoft tools necessary for application development and further useful accessories and tools as well as the full documentation with step by step tutorials.

The preinstalled Windows® CE operating system is based on a boot loader developed by Hitex and on an OAL (OEM Adaptation Layer) that has been optimally adapted to the hardware. This provides the best foundation for reliable use in industrial environment, with boot times of just a few seconds, support of the CAN fieldbus, system update on-the-fly (without any exchange of hardware) and real-time capable interrupts and timer.



HiCO.SH4-104 Technical Data	
Processor	SH7750-F167 SuperH SH4
Flash Memory	8 / 16 MByte
Main Memory	16 / 64 MByte SDRAM
Companion	HD64465
Graphics Controller	S1D13806, CRT/LCD Controller, max. resolution 1024 x 768 pixels, max. 16 bpp
Ethernet Controller	CS8900A, 10Base-T
RTC	RTC8563 with battery backup
Interfaces	USB host, 3 x serial IrDA, 2 x PS/2, 4-conductor resistive touch, 8 x GPIO, JTAG
Bus Interfaces	ISA bus, 8 / 16 Bit, I²C bus, optional PCMCIA
Current Consumption	0.2 A at +5 V
ISA Bus Interface	PC/104, 8 or 16-bit
Audio Interface	Microphone and line-in, speaker out
Compact Flash Socket	For card types I and II
LCD	Various LCD displays and a touch screen can be connected
Port pins	Expansion options available for user
Power supply	0.2 A at +5 V
Operating temperature	0°C to +70°C

Order Descriptions

HiCO.SH4-104	PC/104 Embedded PC comprising of: HiCO.SH4-base and HiCOSH4-core (Core Module and Carrier Board)
HiCO.SH4-core	CORE Module
HiCO.SH4-base	PC/104 Carrier Board
HiCO.SH4-con	Adapter Board
HiCO.SH4-STCE	Windows® CE Starter Kit



Main Office Germany

Greschbachstraße 12 Tel. +49-721-9628-240
D-76229 Karlsruhe Fax +49-721-9628-132
E-mail sales@emtrion.de

Visit us on the internet! www.emtrion.de

Hitex UK

Warwick University Tel. +44-24-7669-2066
Science Park Fax +44-24-7669-2131
GB-Coventry CV4 7EZ E-mail info@hitex.co.uk

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