

## ► Universal Fibre Hub (Standalone Configuration)

The Universal Fibre Hub (UFH) is a multi-format I/O signal concentrator and data redistribution unit. It is highly configurable and is suitable for use in a wide range of I/O monitoring and control applications.

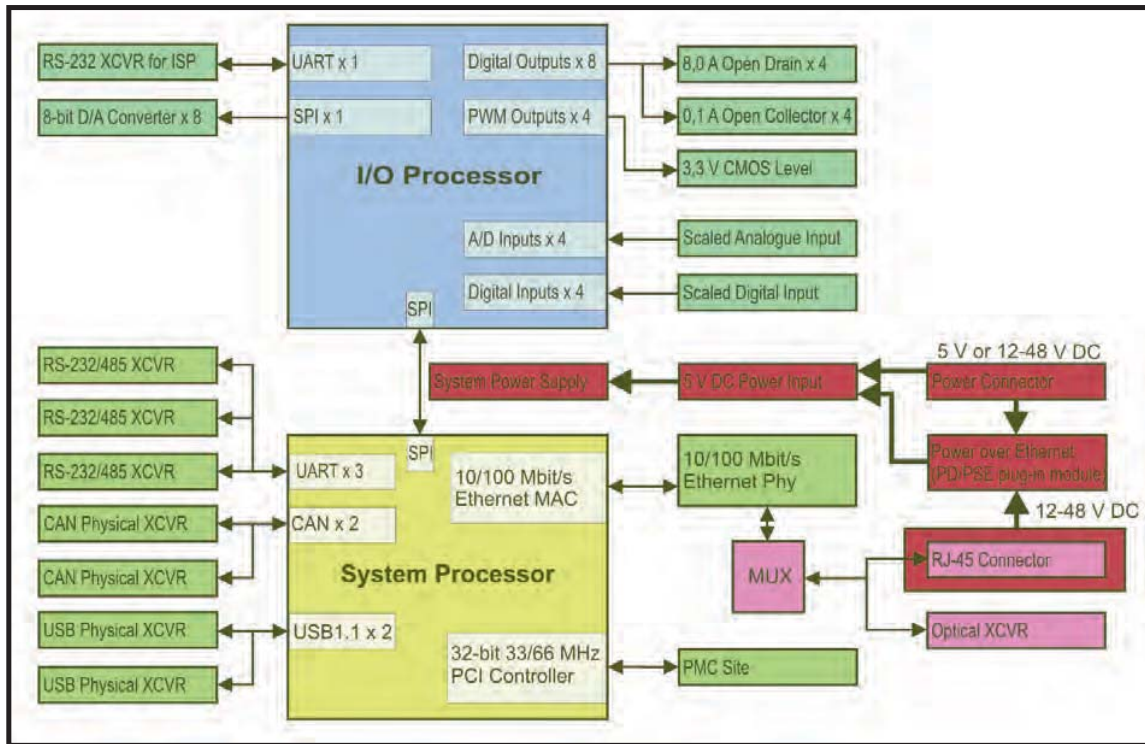
The device is a standalone single board computer with a rich feature list, including an array of analogue and digital I/Os, UART serial I/O channels, USB host interfaces and CAN interfaces.

The UFH is also available as a CompactPCI host, which provides maximum flexibility and scalability to system integrators.

### Architecture

The UFH incorporates two processor domains. Digital and analogue I/O processing is off-loaded to an onboard I/O Processor (16-bit RISC Microcontroller), whilst serial I/O, data communications and other higher level functions are handled by the System Processor (32-bit PowerPC Microprocessor).

It has an onboard 10/100 Base-T Ethernet interface which is configurable for use with either fibre optic or copper media types. The UFH also features an onboard 32-bit 33/66 MHz PMC site, which offers I/O and processing expansion capabilities through the use of a third party PMC adapter. One example of this would be the use of a C²I² Systems Dual Gigabit Ethernet PMC adapter, which provides a dual redundant Gigabit Ethernet link via either fibre optic or copper media.



**Universal Fibre Hub (Standalone Configuration)  
Functional Block Diagram**



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### Features

- VxWorks and Linux operating systems supported
- 32-bit Freescale MPC5200B PowerPC Microprocessor as System Processor
- 16-bit Fujitsu MB96350 Series Microcontroller as I/O Processor
- 32-bit 33/66 MHz PMC site
- 32 Mbyte user / application Flash Memory
- 256 Mbyte 132 MHz DDR-SDRAM
- Two 1 Mbit/s isolated CAN interfaces
- One 10/100 Base-T Ethernet interface, configurable for fibre or copper I/O media types
- Optional Power over Ethernet (PoE) modules, available as Powered Device (PD) or Power Sourcing Equipment (PSE)
- Three 1 Mbit/s UART serial I/O interfaces, configurable as either RS-232 or RS-485
- Two 12 Mbit/s USB 1.1 Host interfaces (Full Speed, 12 Mbit/s)
- Eight 8-bit D/A Outputs
- Four 10-bit A/D Inputs, also configurable as digital inputs
- Four dedicated Digital Inputs
- Four 6 A Open Drain MOSFET Outputs (with onboard LED indicators)
- Four 100 mA Open Collector BJT Outputs (with onboard LED indicators)
- Four programmable PWM Outputs

Specifications	
<b>System Processor</b>	Freescale MPC5200B Microprocessor, PowerPC e300 core @ 400 MHz
<b>I/O Processor</b>	Fujitsu MB96350 Series Microcontroller
<b>DDR-SDRAM</b>	256 Mbyte @ 132 MHz bus frequency
<b>Flash Memory</b>	32 Mbyte
<b>Ethernet Interface</b>	Single 10/100 Base-T interface, configurable for use with either fibre optic or copper media
<b>USB Host Interface</b>	Dual USB V1.1 host interfaces, with a maximum bit rate of 12 Mbit/s
<b>CAN Interface</b>	Dual CAN V2.0 (Part A and B) interfaces, with a maximum bit rate of 1 Mbit/s
<b>Serial I/O Interface</b>	Three UART serial I/O channels, each configurable for either RS-232 or RS-485 operation, with a maximum bit rate of 1 Mbit/s
<b>Digital Inputs</b>	Four dedicated digital inputs
<b>Analogue Inputs</b>	Four 10-bit analogue to digital inputs (also configurable as digital inputs)
<b>Digital Outputs</b>	Four 100 mA Open Collector BJT outputs Four 8,0 A Open Drain MOSFET outputs
<b>Analogue Outputs</b>	Eight 8-bit digital to analogue outputs
<b>PWM Outputs</b>	Four programmable Pulse Width Modulation outputs
<b>PCI Bus Interface</b>	32-bit, 33/66 MHz Electrically : PCI Rev.2.2; 3,3 V signalling Single 32-bit PMC site (with no PMC rear I/O)



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Characteristics	
Physical	<b>Dimensions</b>
	176 mm x 132 mm
	<b>Mass</b>
	145 g +/- 10 g
Power	20 W (5,0 V DC @ 4,0 A), including PMC adapter with 7,5 W power consumption
Software	User defined, running on either VxWorks or Linux operating systems

Reliability										
MTBF	Figures according to MIL-HDBK-217F, Parts Stress Method									
	<table border="1"> <tr> <td>Ground, Mobile</td> <td>T<sub>a</sub> = 45 C</td> <td>27 000 hrs</td> </tr> <tr> <td>Naval, Sheltered</td> <td>T<sub>a</sub> = 40 C</td> <td>49 000 hrs</td> </tr> <tr> <td>Airborne, Inhabited Cargo</td> <td>T<sub>a</sub> = 55 C</td> <td>29 000 hrs</td> </tr> </table>	Ground, Mobile	T <sub>a</sub> = 45 C	27 000 hrs	Naval, Sheltered	T <sub>a</sub> = 40 C	49 000 hrs	Airborne, Inhabited Cargo	T <sub>a</sub> = 55 C	29 000 hrs
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Environmental Specifications			
	Commercial Grade	Industrial Grade	Ruggedised Grade
Temperature - Operating - Storage	0 C to +55 C -40 C to +85 C	-15 C to +75 C -50 C to +85 C	-40 C to +85 C -60 C to +125 C
Humidity	0% to 90%	0% to 95%	0% to 95%
Shock	N/A	30 g peak for 11 ms	40 g peak for 11 ms
Vibration - Sine - Random	2 g (peak) 10 Hz to 100 Hz 0,04 g²/Hz at 15 Hz to 2 kHz	10 g (peak) 5 Hz to 2 kHz 0,1 g²/Hz at 15 Hz to 2 kHz	10 g (peak) 5 Hz to 2 kHz 0,1 g²/Hz at 15 Hz to 2 kHz

Part Selector		
Part Designation	Type	Grade
CCII/UFH/SA/001/COM	Standalone	Commercial
CCII/UFH/SA/001/IND	Standalone	Industrial
CCII/UFH/SA/001/RGD	Standalone	Ruggedised

Universal Fibre Hub (SA)

Board-Level