PROTONV2-3M07

Digital signal processing platform

KEY FEATURES

Programmable logic

Up to six Spartan-III XC3S1500FG676 Xilinx FPGA's (9mill. gates in total) assigned to two different connector areas. Both connector areas are linked to each other through three different buses:

- System bus.
- FPGA bus.
- IO bus.

All FPGA's can be programmed via JTAG interface, via master serial interface or using slave SelectMap mode from the microprocessor of the system. A 16 Mbits configuration EEPROM is available for every FPGA in the system.

32 bit Microprocessor

A standard ARM controller module supporting embedded high level operating systems (Windows CE, embedded Linux) and RTOS. The module includes the following resources:

- 64 MB SDRAM.
- 32 MB flash memory.
- Ethernet controller.
- USB host and device controller.
- CAN bus controller.
- UART and RS232 transceivers.
- 2 Gigabyte SD card.

Modularity

Backplane based modular architecture. FPGA, microcontroller and IO modules exchangeable.

Connectivity

Default connectivity resources:

- 10/100Mbit Ethernet.
- High speed CAN bus.
- USB host.
- RS232.

Additionally, customised communication modules can be added to the IO bus interface.

Video interfaces

Default video resources:

- Composite video input/output.
- Component video input/output.
- S-Video input/output.
- RGB video input/output.
- DVI input/output.
- Up to 1600x1200 display resolution.
- Up to 2GB of video memory.

Additionally, customised video modules can be added to the IO bus interface.

User Interface

Default user interface resources:

- 2 Push button / rotary encoders.
- Embedded TFT LCD 240x320.
- Status LED's.

Additionally, customised user interface devices can be added to the IO bus interface or USB connection.

ramDSP electronics
Ferchensee Str. 20
D-81379 Munich
Telefon: +49 (0) 8912739195
Fax: +49 (0) 8912739196
info@ramdsp.com
www.ramdsp.com

PROTONV2-3M07
Digital signal processing platform

6 x FPGA + 32bit microcontroller prototyping system

PROTONV2-3M07 is a prototype development platform that targets digital signal processing and data logging applications.

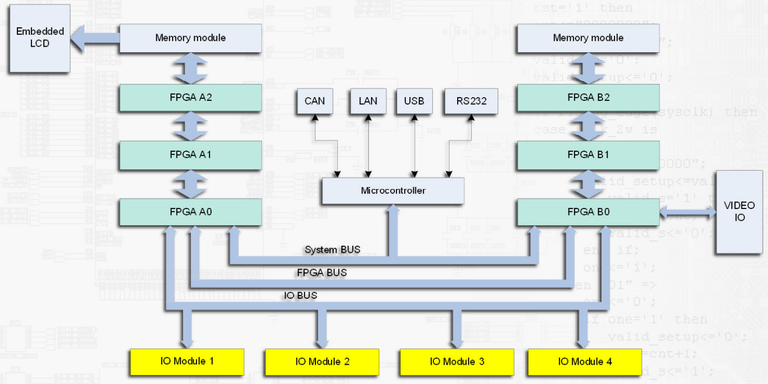
A unique multiprocessing architecture combining Field Programmable Gate Array and 32 bit microcontroller.

PROTONV2-3M07 prototyping environment is a safe start for development cycles of processing and control systems requiring high computation complexity and/or logic resources.

PROTONV2-3M07

Digital signal processing platform

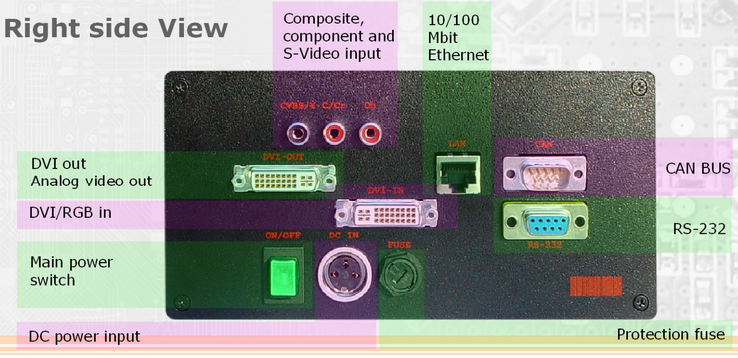
PROTONV2-3M07 Block Diagram



General Specifications

Digital video input	24 bit per pixel, 25 to 170 MHz pixel clock (up to UXGA 1600x1200 @ 60Hz)
Digital video output	24 bit per pixel, 25 to 165 MHz pixel clock (up to UXGA 1600x1200 @ 60Hz)
Analog video input	Composite, component and S-Video integrated decoder (PAL/NTSC/SECAM) 10 bit resolution @86 MHz pixel clock.
RGB video input	3 x 8 bit 170 MHz analog to digital converter.
RGB and Analog Video output	3 x 10 bit 240 MHz digital to analog converter. VHDL based video encoder.
Video frame buffer memory	2 x 64bits @ 133MHz, SDRAM. Up to 2GBytes capacity.
Logic resources	Up to 9 Million logic gates
IO connectors	4 different connector areas with up to 300 IO's
Operating system	Embedded Linux/ Windows CE
Power Supply	Voltage 8-24 DC, 500 mA min.
Weight	1550 gr.
Size	90x170x180mm

Right side View



Front View

Back and left Side

User definable cut out for back and left side housing plates customised for an specific application and IO modules used.

Application examples and derived products

Video processor

- Video analyzer/synthesizer.
- Video router.
- Format conversion/resizing.
- Real time video processing.
- Video logger.

Bus (CAN, FLEXray, LIN, MOST, USB, K-line, RS232, Ethernet)

- Multiple gateway.
- Bus event logging.
- Bus error generation on logic and bit level.
- Mixed field event triggering, bus event, video event, analog event.
- Visualization and configuration PC tool.

Audio processor

- Multi-channel high bandwidth audio inputs.
- Audio analyzer/synthesizer.
- Audio router, optical link.
- Real time audio processing.
- Audio logger.
- D-class amplifier.

MultiGigabit transmitter/receiver

- Two wire, 8 wire Gigabit LVDS channels.
- 2.5 Gigabit optical links.
- Bit error measurement.

Hardware in the Loop

- Automated IO control.
- Automated IO logging.
- Controlled power supply.
- Analog signal generation.

Mixed signal oscilloscope

- 200 signals logic analyser
- Multi analog input.
- Mixed event triggering.
- Data logging.

Logic emulator

- Up to 9 million system gates.
- 1000 IO's.
- Real Time stimuli generator.
- Real world environment connectivity.