

LpDAS

Low power Data Acquisition System



The LpDAS series of products are small, lightweight, conduction cooled embedded computers for rugged environments. These customizable off-the-shelf computers have many built-in and customizable standard peripherals and interfaces for various avionics databuses as well as (cc)PMC expansion capability. With the addition of application software the LpDAS provides a readily available solution to challenging interface, bridging and control problems. The LpDAS is available in many configurations to meet a variety of needs.

Typical applications for the LpDAS include intelligent remote data concentration, data and protocol conversion, data logging, active control, process and health monitoring. The LpDAS is designed to be a Portable solution for High Performance applications, both on the ground and in the air, The Low-Power Electronics, PowerPC® processor and small dimensions enable this to be achieved, making the LpDAS ideal for Avionics, Defence, Transportation and Industry.

Architecture

At the heart of the LpDAS, a user programmable PowerPC® processor runs the software application and controls the various standard interfaces (CAN, serial, Ethernet, Analogue and discrete) and avionic databuses (ARINC 429, MIL-STD-1553 etc.). Hardware interfaces are integrated to a high-level of functionality in FPGA in order to make full use of the processor for software application.

Application examples

The versatility of the LpDAS lends itself to many different applications. As an intelligent Remote Data Concentrator (iRDC), measure and process data and transmit it via AFDX. As protocol converter it can aid in the integration of commercial and military avionics.

The ability to combine data acquisition with Real Time Processing offers the potential to deploy the LpDAS in Time Critical Systems, where the fast-loop processing can be performed locally without placing extreme demands on the databus.

Software

The included LpDAS Software Development Kit (SDK) provides tools and examples to facilitate the development of OS-less software applications. Optional with TCP/IP stack.

On request the LpDAS can be provided with an Operating System, like Embedded Linux, VxWorks and PikeOS.

Features:

- > Refer to backside datasheet

Architecture

- * Enclosure
- * Power supply board
- * Processor board
- * Backplane: max. 4 (cc)PMC boards for custom application, IEEE P1386.1 or ANSI/VITA 20-2001 (R2005)
- * Signal conditioning board: separate clean and dirty area
- * Connector board
- * Two push buttons
- * 4 Character display

Processor board characteristics

- * PrPMC520 (AcQ Inducom)
- * MPC5200 CPU, 400MHz core frequency
- * 256MByte SDRAM
- * 128MByte Flash
- * 64kb EEPROM
- * RTC
- * 1x CompactFlash
- * 1x Ethernet 10/100Mb (to rear I/O)
- * 1x RS232 serial interface
- * 2x CAN interface (to rear I/O)
- * Voltage monitor
- * Temperature sensor
- * PCI v2.2 interface, 32bit, 33MHz
- * 3.3V signalling

Power supply characteristics

- * Input voltage 28Vdc (nominal)
- * Output voltages all short circuit protected
- * Output: ± 15 Vdc, 15W, galvanically isolated
- * Output: ± 12 Vdc, 15W
- * Output: +5Vdc, 30W
- * Output: +3.3Vdc, 15W
- * Power input surge voltage protection
- * EMI filter
- * Power interrupt protection: >50ms at typical load of approx. 25W
- * Temperature monitoring
- * Input and output voltage monitoring
- * Cold/warm power-on detection

Optional PMC boards

To create the right LpDAS system for an application, we offer PMC boards like:

- * Analog input, 16bit, 250kHz, simultaneous, programmable range
- * Analog output, 16bit, 250kHz, simultaneous, programmable range
- * Digital input
- * Digital output
- * ARINC429
- * ARINC825 (CAN)
- * MIL-STD-1553
- * AFDX end system
- * Others...

Software and environmental

Software

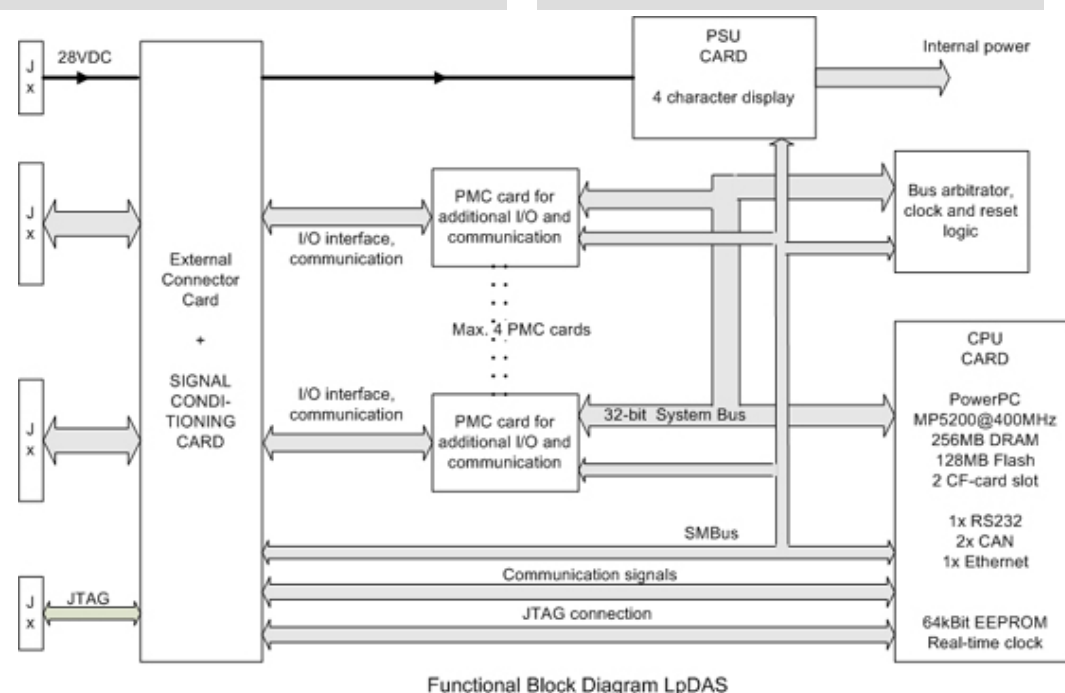
- * LpDAS Software Development Kit (SDK) for OS-less applications
- * Optional TCP/IP stack for SDK
- * On request: operating system implementation like Embedded Linux, VxWorks and PikeOS

Environmental

- * Dimensions: approx. 217x104x182 (lwxh in mm), excluding connectors and mounting frame
- * Weight: approx 2.5kg
- * Temperature range -40..+85°C
- * DO160 Compliant

Ordering Information

- * **LpDAS** Low power Data Acquisition System: please contact us for configuration, customization and ordering information



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