

# PROCSpark II™ – Cyclone II 35 Board

## Overview

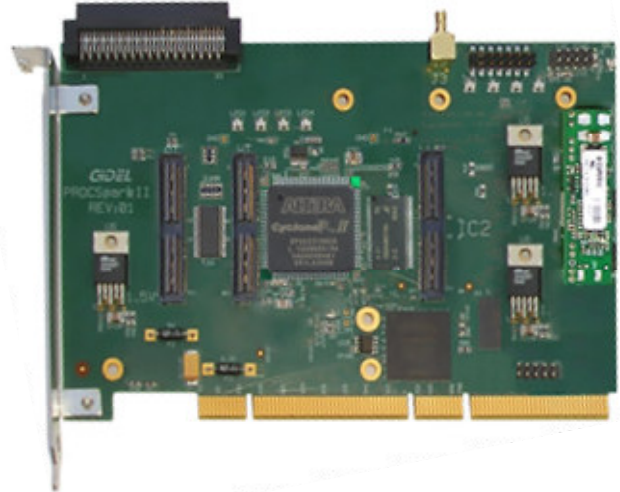
**PROCSpark II™** board provides an FPGA-based platform for reconfigurable computing. The FPGA, the memory and the daughterboards' flexible architecture (system I/O, DSP etc.) of the **PROCSpark II™** system, enable the user to build complex designs at fair price. The cost and performance of PROCSpark II make it very attractive for production requirements.

**GiDEL PROC Pak II** improves the time-to-market even more. There is no need to design the board, the PCI driver, the application driver layer, define board constraints, design memory controller and write environment FPGA code. This enables designers to focus on their proprietary value-added design instead of spending their valuable effort to recreate standard design components.

With **PROC MultiPort** innovative memory controller, the generated HDL code enables high speed, easy-to-use parallel access to large memories.

## Key Features

- Altera Cyclone II EP2C35 FPGA.
- 33216 Logic Elements.
- PCI 64/32bit 66/33MHz with 2 DMAs running at 400MB/s sustain access rate.
- Three-level memory structure:
  - ◆ 105 M4K Dual Port RAM blocks (256 x 18 bits, 69GB/s at 150MHz)
  - ◆ 64MB DDR DRAM @ 900MB/s sustain rate
  - ◆ Up to 16GB on a PSDB\_Mem daughter board
- Innovative DDR memory controller with 2 to 16 ports.
- Up to 3 TMS320C6414-1Ghz DSPs on a PSDB\_DSP1G daughter board, with 64MB per DSP.
- Up to 2 PSDBs (**PROCSpark II** Daughter Boards): CameraLink, Machine I/Os and other functions.
- Up to 314 available I/Os.
- Flexible clocking system.
- Typical system frequencies: 50 - 200MHz.
- Supported by **GiDEL PROC Developer's Kit**



## Benefits

- High performance
- Low cost
- High flexibility to fit customer needs
- Cuts development cycle time and budget
- Reliability
- Maintainability
- Long life cycle

## Application examples

- Powerful frame grabber
- Vision, imaging and image recognition
- Rapid Prototyping
- DSP
- System hardware acceleration
- Test equipment
- Aerospace and military systems
- Algorithm design and verification

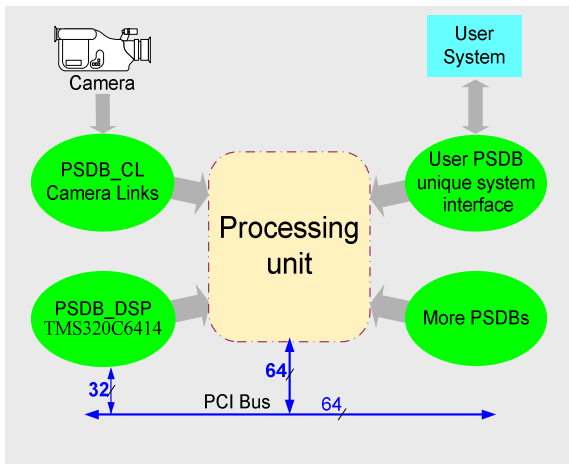
## Development Environment

GiDEL's intuitive design & debug kit, the **PROCPak II™**, supports the development effort for your design.

The kit contains the **PROCSpark II** board, the **PROCWizard**, the **PROCMultiPort** IP and ByteBlaster (Quartus Web Edition is supplied for free by Altera).

The **PROCWizard** performs hardware initialization and automatically generates the following:

- C++ class application driver
- Top-level designs and the interface modules / entities
- Device constraints (as pin-outs)
- Interface documentation in HTML or Microsoft Word



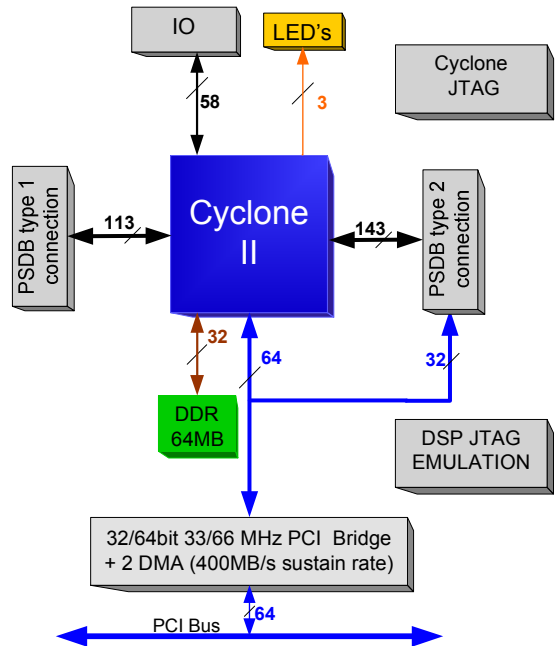
**PROCSpark II System Example**

The **PROCMultiPort** core provides two basic benefits:

- Simplifies achieving high system performance
- Replaces need for inventory of special memories with standard memory and IP.

The **ByteBlaster** enables visibility of internal nodes using the available on-board memory.

The **PSDB\_Proto** daughter board includes prototyping area that enables rapid system additions by wiring/soldering devices & connectors. In addition, logic analyzer connections are placed on the daughter board for easy debugging.



**PROCSpark II Block Diagram**



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