

Platform FPGA Development Board Reference Designs

AMIRIX Platforms Overview

AMIRIX has developed considerable expertise and IP related to Platform FPGA technology – particularly the Virtex II Pro™ and Virtex-4™. To make this technology more accessible to developers and integrators, AMIRIX has introduced a line of Embedded FPGA Platforms. These modules are supported by the following third party development tools:

- ▶ Modifications to FPGA fabric and internal program code require Xilinx Embedded Development Kit (not included)
- ▶ TimeSys™ Linux Software Development Kit (SDK) (not included)
- ▶ PPC405 cross compiler required to develop user code (not included)

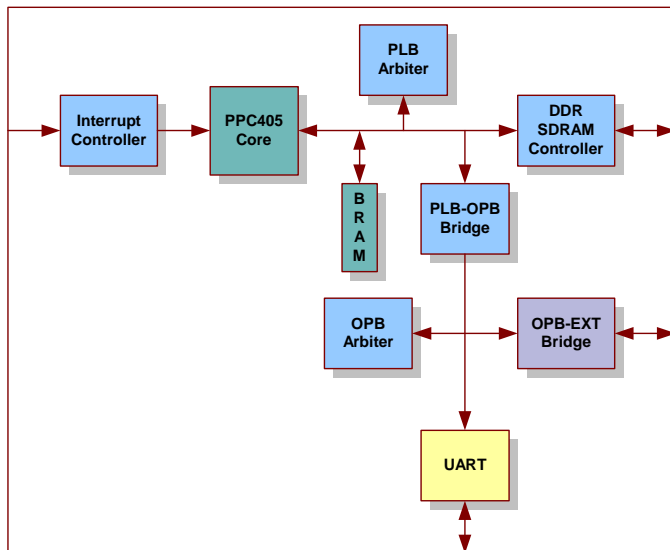
The Baseline Platform is intended to form a basis for writing software and developing IP for the Virtex II Pro. This platform, along with AMIRIX's family of Platform FPGA boards, provides the basic hardware infrastructure of a single board computer. The PPCBoot monitor and Linux OS are provided for the Baseline Platform.

Baseline Platform FPGA Features

- ▶ PPC405 processor core
- ▶ IBM CoreConnect infra-structure, featuring Processor Local Bus (PLB) and On-Chip Peripheral Bus (OPB)
- ▶ PLB access to external DDR SDRAM
- ▶ OPB access to UART/Serial Port
- ▶ OPB access to external local bus
- ▶ Direct processor access to dedicated block memory
- ▶ Interrupt controller

Baseline Platform Software Features

- ▶ PPCBoot monitor program boots automatically from external Flash, using bootstrap program in internal memory
- ▶ TimeSys™ Linux Evaluation Kit (LEK)



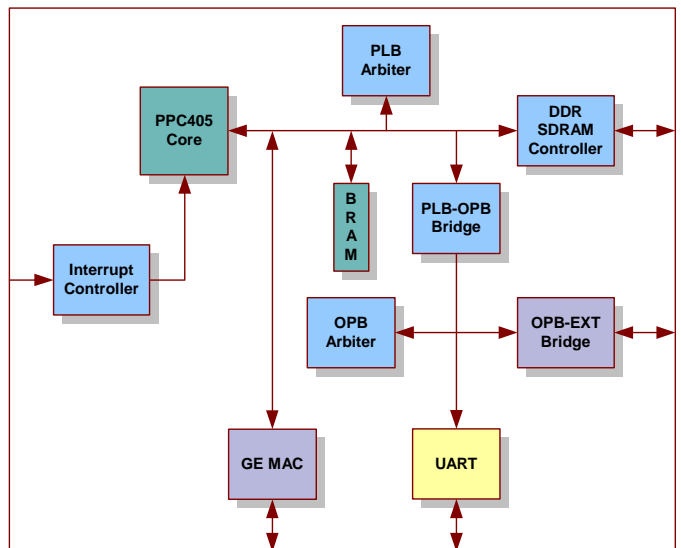
Baseline Platform Standard Platform

The Standard Platform enhances the Baseline Platform with the addition of a Gigabit Ethernet interface. An external physical layer device is available on AMIRIX's family of Platform FPGA boards to provide a complete high-speed network interface. The MAC is supported with a Linux driver to provide an application-ready platform.

Standard Platform FPGA Features

The Standard Platform includes all the Baseline Platform FPGA and Software features plus the following:

- ▶ PLB access to Gigabit Ethernet MAC



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Ordering Information

Part Number: AM10-Baseline Platform
AM11-Standard Platform
AM12-Dual Gigabit Ethernet Platform
AM14-Quad Gigabit Ethernet Platform

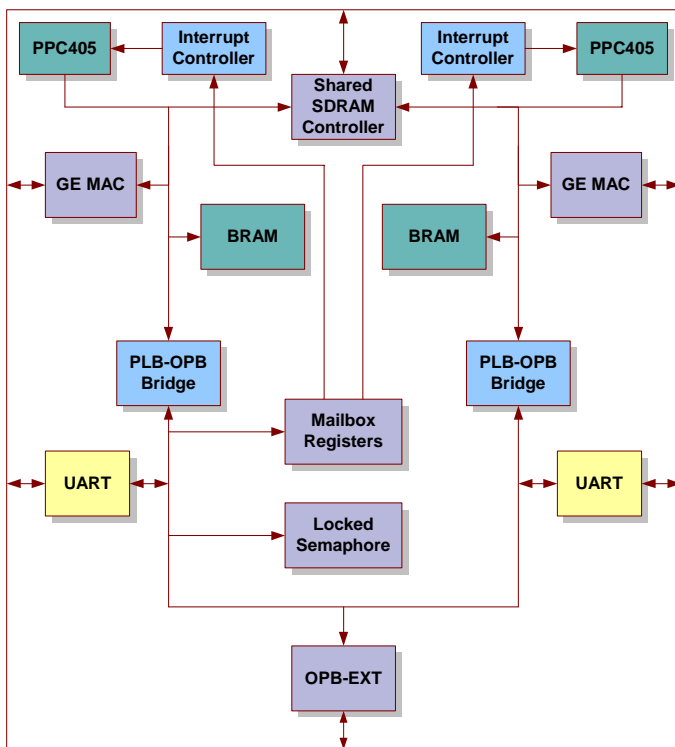
Dual Gigabit Ethernet Platform

The Dual Gigabit Ethernet Platform builds upon the Standard Platform, essentially providing two such platforms in a single FPGA. The Dual Gigabit Ethernet Platform utilizes both of the PPC405 cores that are available in the larger Virtex II Pro devices. Each processor has access to a GE MAC on its local bus. The external DDR SDRAM is shared between the two processors, with hardware providing private memory for each, as well as a shared area of memory. To support multiprocessing applications, the Dual Gigabit Ethernet Platform includes mailbox registers and semaphore hardware for inter-processor communication. In addition, a shared memory Ethernet driver is provided within the Linux kernel to provide a networked interface between processors.

Dual Gigabit Ethernet Platform FPGA Features

The Dual Gigabit Ethernet Platform includes all the Baseline Platform FPGA and Software features plus the following:

- ▶ Two PPC405 processor cores
- ▶ PLB access to shared DDR SDRAM
- ▶ PLB access to Gigabit Ethernet MACs
- ▶ OPB access to Mailbox Registers
- ▶ OPB access to semaphores



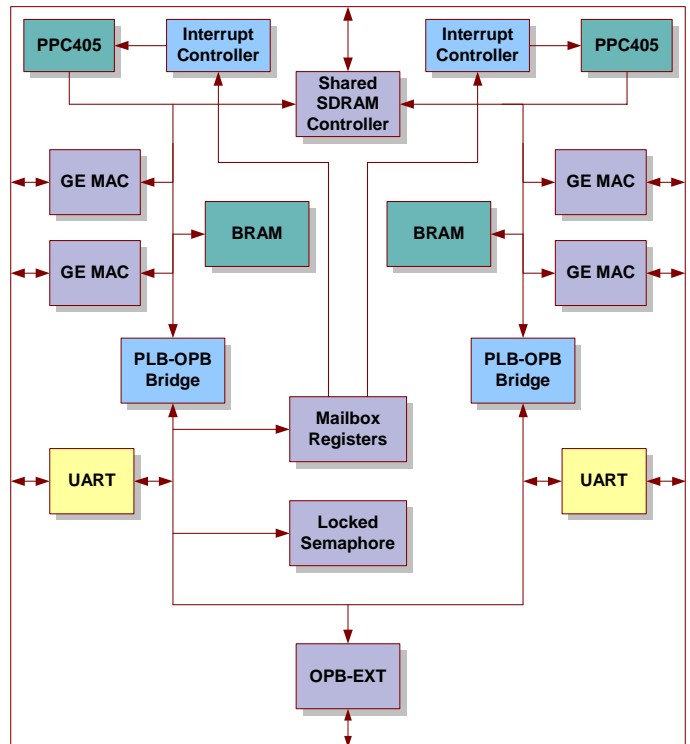
Quad Gigabit Ethernet Platform

The Quad Gigabit Ethernet Platform builds upon the Dual Gigabit Ethernet Platform by providing two additional Gigabit Ethernet interfaces. These two additional interfaces are supported through the use of a Dual Gigabit Ethernet Ethernet Mezzanine Module, which provides the external physical layer devices for this platform.

Quad Gigabit Ethernet Platform FPGA Features

The Quad Gigabit Ethernet Platform includes all the Dual Gigabit Ethernet Platform features plus the following:

- ▶ PLB access to two more Gigabit Ethernet MACs



Contact us regarding other platforms currently under development at AMIRIX, custom derivative designs, or your specific IP development needs.

Platform	Embedded FPGA Platform Resources Utilization			
	Baseline	Standard	Dual Gigabit Ethernet	Quad Gigabit Ethernet
AP107	80%	N/A	N/A	N/A
AP120	40%	60%	97%	N/A
AP130	30%	40%	70%	95%