PC7205
Development Platform
Preliminary Product Brief

PC7205

Description

The PC7205 is a complete evaluation and development platform for WCDMA Femtocell or WiMAX Home basestation. Emphasizing low cost, the board is adaptable to an array of applications through reprogramming and modular radio cards.

Based on picoChip's new highly integrated PC205 PHY processor with ARM9 processor, the board offers high performance in a small space. The PC7205 offers the higher-speed encryption, FEC, and FFT blocks for high bit-rate applications. Additional interface ports accommodate diversity and MIMO radio interfaces.

The IEEE-1588-based timing option allows femtocell network synchronization using IP connections to IEEE-1588 timing generators in the network.

Optional cards include an Analog radio card with Analog I an Q signals and connections to radio cards. Support for the Analog Devices AD935X WiMAX RF board and future WCDMA radio solutions.

Included is a complete software Board Support Package (BSP) for Linux development. This includes a pre-configured kernel for the ARM9, drivers for on-chip peripherals, and a complete development tool chain.

Features

- PC205 Baseband DSP Processors + ARM926
  - Full Speed Accelerators (compared to PC7202)
  - Up to Three ADI ports for Radio and Peripheral Interfaces
- Supports picoChip WiMAX and WCDMA Reference Designs
- Complete Linux Board Support Package (BSP)
- 10/100 Ethernet Port
  - On-Board PHY
- IEEE-1588 Network Synchronization Option
- 128MB DDR2 SDRAM 200MHz/400Mbps
- 128M Bytes NOR Boot Flash
- Status LEDs
- On-board power supplies (12V input)
- Debug JTAG and RS-232 ports
- Schematic and layout details supplied to aid and expedite your design

ARM9 Subsystem

- 280MHz ARM9
  - 64K I-cache, 64K D-cache
  - 128K TCM
  - 128K SRAM
- Peripherals
  - 10/100 Ethernet MAC
  - UART
  - GPIO (8)
  - Timers
  - Real Time Clock

Applications Examples

- 802.16e Home basestation
  - PC8630 Reference Design
- WiFi Hotspot with WiMAX Backhaul

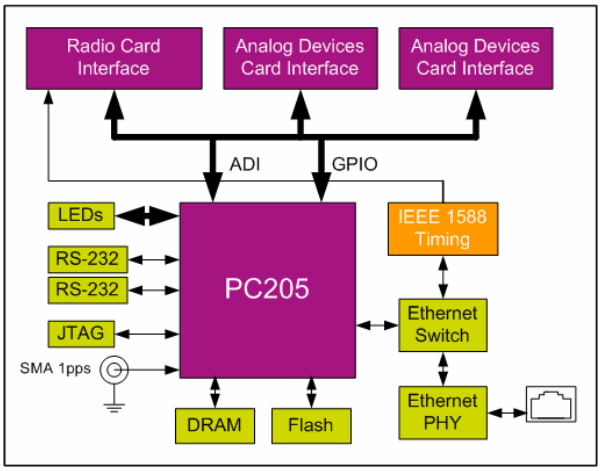

Figure 1 PC7205 Block Diagram

Architecture Overview

The PC7205 is designed to be a flexible and comprehensive evaluation and development platform for a range of current and future wireless standards. It has a PC205, picoChip's powerful baseband PHY processor with integrated ARM9 processor. The picoArray baseband processor operates the PHY portion of the application while the ARM9 supplies the MAC and host processor functions.

An Ethernet interface allows connection of the application to the network via ADSL, Cable Modem, or router. During development the Ethernet can be used to debug both the Linux-based application using standard debug tools and the picoArray code using the picoTools picoDebugger. For kernel-level debug an RS-232 port is also provided.

Radio Interfaces

The PC7205 has one Radio Card Connector (RCC) that connects to existing picoChip radio cards. The RCC can be used to create an analog I/Q interface or attach radio cards for a complete RF solution. There are two radio card options available; the ARCC (PC7110) and the Analog Devices AD935X evaluation card. Future RF cards will be provided for WCDMA femtocell applications.

Extra ports for the radio interfaces support diversity and MIMO applications.

Network Timing

An IEEE-1588 timing solution based on Semtech's ToPSync™ technology is provided as one option for network synchronization in femtocell applications. By relying on an internet connection, IEEE-1588 removes the need for expensive high quality timing sources like OCXOs. The IEEE-1588 chipset shares the Ethernet connection with the PC202 using an inexpensive switch chip.

Alternatively an SMA connector allows connection of a precise 1pps signal for network timing synchronization.

Software Support

A board support package (BSP) comes with the board. Based on the Linux 2.6 kernel it includes peripheral drivers as well as tools for picoArray configuration and debugging. The BSP is in source format under a GPL license; royalty-free for inclusion in customer applications.

What's Included

- Assembled/tested Board
- Power Supply
- Board support Software and Documentation available on picoChip Support Website
- Quick Start Guide
- Ethernet and RS-232 cables
- System Requirements
  - PC Running Linux Red Hat Enterprise 3, CentOS 3.4 and Debian 3.1

Ordering Information

Ordering Number	Description
PC7205	Hardware Development Platform for PC205