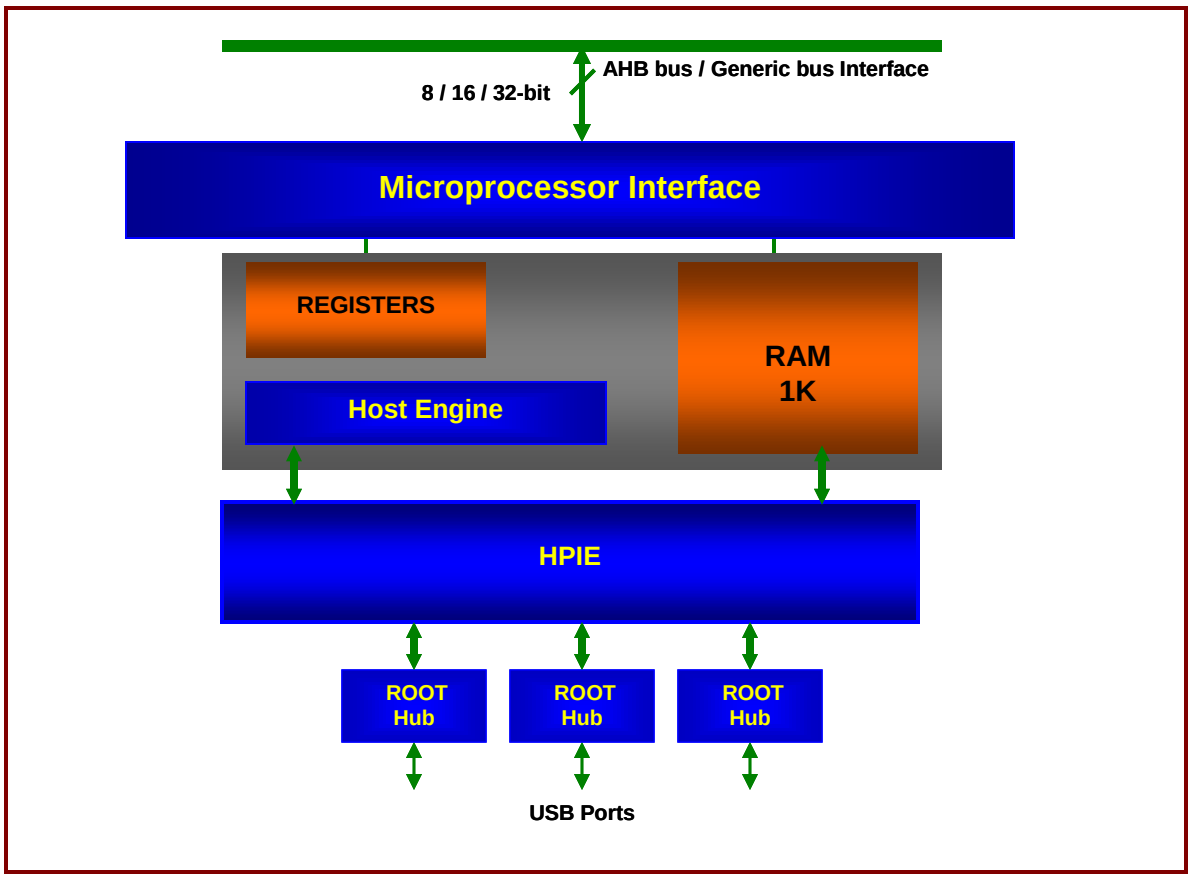
Figure 1: Block Diagram of Embedded USB 2.0 Host core



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Overview

VinChip's USB 2.0 embedded host controller is designed for flexibility and ease of use; is available with a ***Software stack***; facilitates implementation of a wide variety of applications like PDA to a printer/ hard disk, Camera to a printer / hard disk, etc., This design is technology independent and migrating it to any technology is fast and this can be easily bridged to ARM Bus, VCI Bus, etc.,

Key Features

- Portable **'C' software stack** provided.
- VHDL / Verilog source code provided.
- USB2.0 specification compliant.
- Technology independent.
- Integrated root hub with 1 to 3 ports.
- Supports high and full speed devices.
- Handles 127 USB devices downstream.
- Supports Control, Bulk, Isochronous and interrupt data transfer at all speeds.

Description

The Embedded 2.0 Host Core comprises the following blocks.

MICRO PROCESSOR INTERFACE UNIT

This provides a generic microprocessor interface with 8 or 16 or 32 bit data bus, compatible to any external microprocessor.

REGISTERS

This block includes the basic set of registers that is required for the initialization of the host controller, command, interrupt and status control, transfer specific details etc.

RAM

This block is a 1024 byte of bi-directional buffer that holds the data to/from the device during OUT/IN transfers on the USB.

HPIE

This is the module that handles the USB protocol in addition to handling parallel interface of 16 bits, CRC checking and generation, NRZI encoding and decoding etc.

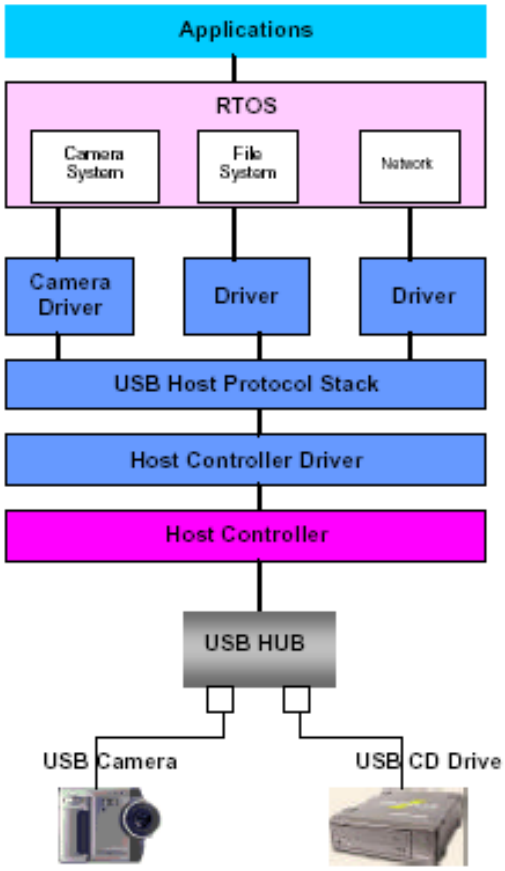
HOST ENGINE

It is a simple controller that takes care of the frame management and controls the interface between the register and the HPIE.

ROOT HUB

This block routes the USB transactions between the downstream ports and the HPIE block. It also handles connect / disconnect detection

USB2.0 Embedded System Stack Diagram



Products & Services

VinChip's suite of soft cores for SoCs includes USB and PCI. These soft cores come with comprehensive documentation, verification environment, vhdl or Verilog RTL code, test suite, drivers and tech support. Please contact us at the address given below for more information on our products and services.