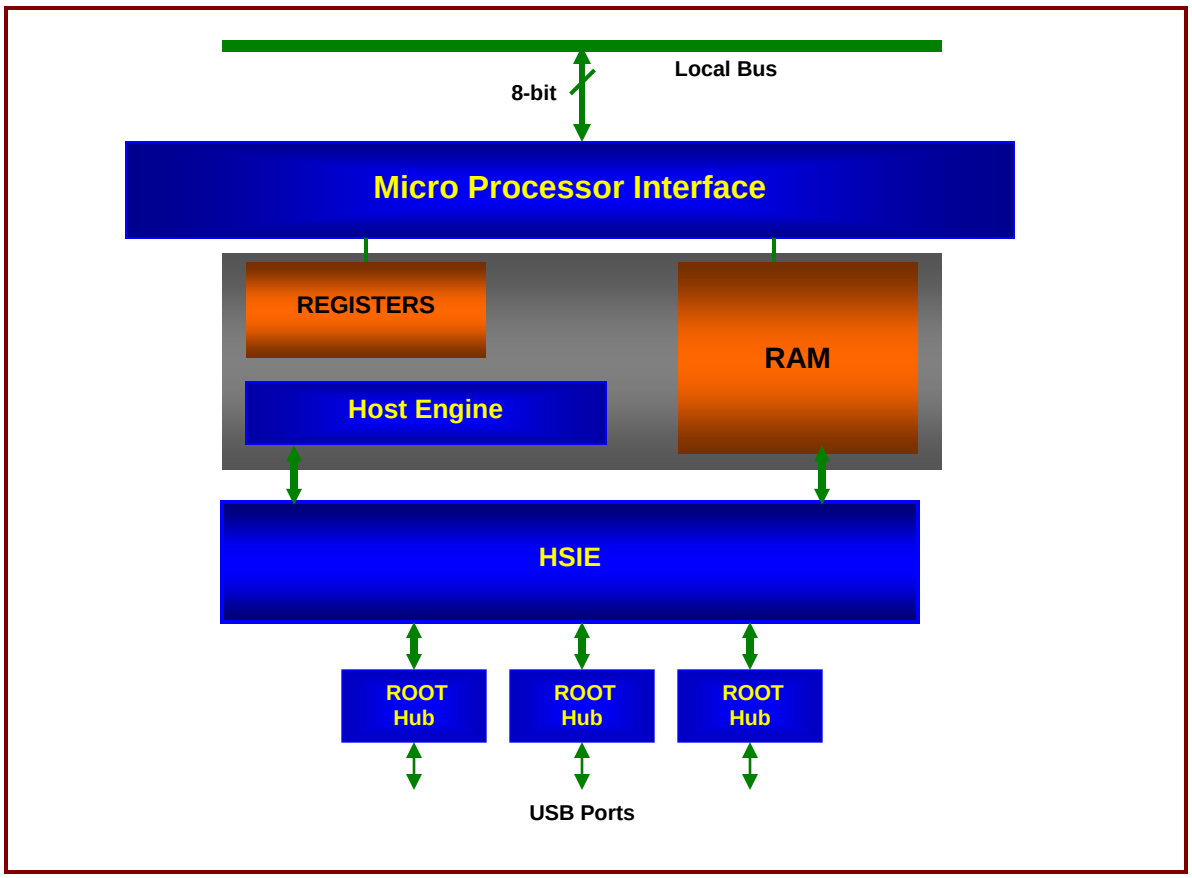
Figure 1: Block Diagram of Embedded USB 1.1 Host core



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Overview

VinChip's USB 1.1 embedded host controller is designed for flexibility and ease of use; 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, using VinChip's ARM cores.

Key Features

- VHDL / Verilog source code provided.
- USB1.1 specification compliant.
- Technology independent.
- Portable 'C' software stack provided.
- Integrated root hub with 1 to 3 ports.
- Supports low and full speed devices.
- Handles 127 USB devices down stream.
- Supports Control, Bulk, Isochronous and interrupt data transfer at all speeds.

Description

The Embedded OHCI Core comprises the following blocks.

MICRO PROCESSOR INTERFACE UNIT

This provides an 8-bit interface 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.

HSIE

This is the module that handles the USB protocol in addition to handling parallel to serial conversion, crc checking and generation, nrzi encoding and decoding etc.

HOST ENGINE

A Simple controller that takes care of the frame management and controls the interface between the register and the HSIE.

ROOT HUB

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

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.