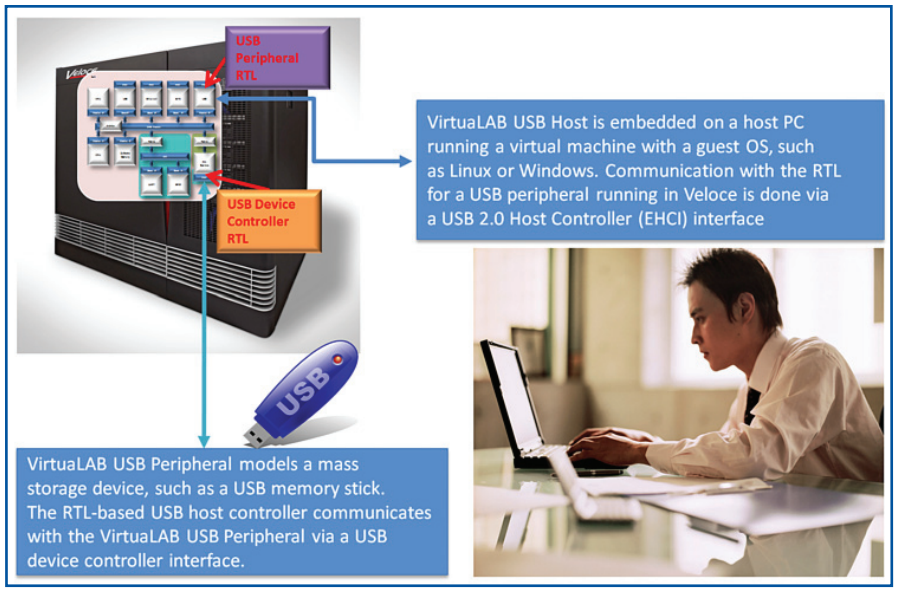
Virtual USB 2.0 Device



The Veloce Virtual USB 2.0 Device models both USB host and peripheral device solutions in a single product for use with an SoC design emulated in Veloce.

The Veloce® Virtual USB 2.0 Device provides a high-speed solution for the verification of System-on-Chip (SoC) designs containing a USB host or peripheral device solution. In peripheral mode, a USB device controller modelled in RTL and running in the Veloce emulator, communicates with the virtual USB peripheral, modelling a hard disk drive or portable memory USB device. In host mode, the USB host is embedded in a virtual machine running a guest operating system, such as Linux or Windows, and communicates with a user's USB peripheral RTL running in the Veloce emulator via a USB host controller interface (EHCI). Together with the Veloce hardware emulator, the Virtual USB 2.0 Device increases the overall productivity of system-level verification by accurately modelling a USB host or peripheral device connected to an SoC design.

The Virtual USB 2.0 Device connects to the USB host interface through a USB 2.0 UTMI interface or a UTMI+ low-pin interface (ULPI) accommodating a variety of contemporary USB 2.0 systems. Since the mass storage capacity of the USB 2.0 device is modelled on the PC host memory, the available capacity is very high, and the speed of access very fast, providing a high-performance, productive environment for the verification of USB-based designs. The product's host interface provides an easy-to-use environment for configuring external USB peripherals. Users are able to control common parameters; including initialization, data uploaded from or downloaded to the USB peripheral, peek and poke values, and configuration of common characteristics of the USB peripheral, such as descriptors.

PRODUCT FEATURES

- Virtual solution models either a complete, standard USB 2.0 mass storage peripheral or a USB host bus device
- Communicates with emulated design in Veloce via a high-speed co-model link
- USB peripheral is modelled using PC memory providing very high capacity (Gbs) mass storage
- USB host is embedded in a virtual machine running a guest operating system
- Supports both USB 2.0 Full Speed (FS) and High-Speed (HS); compliant with the USB 2.0 specification
- Supports UTMI and ULPI interfaces for flexible USB host controller connectivity
- Models standard USB device requests and mass-storage class specific device requests
- Flexible and easy-to-use graphical host application interface provides control over set up, initialization, and data upload/download
- Host application interface allows configuration of common USB characteristics such as device speed and descriptors
- Transaction tracing for debug visibility into the USB software stack using the host application

PRODUCT SPECIFICATIONS

- Host interface support:
  Linux® Red Hat Enterprise 5 (64-bits), SuSE SLES 10 (64-bits)
- Platforms:
  Veloce family of emulators
- Up to megahertz performance in emulation

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