DC2003

TransDIMENSION

USB 2.0 High Speed Device Controller with IDE Interface

Description

TransDimension's DC2003 is a general purpose, single port USB 2.0 High Speed Device controller with IDE support that is the first in a family of integrated low-cost, high-performance device controllers optimized and specifically designed for embedded systems, mobile communication, and consumer products.

The DC2003 is a non-PCI based controller with built-in UTMI 1.0 compliant transceiver macro cell and optimized serial interface engine (SIE). The DC2003 is a USB Specification Rev. 2.0 compliant high-speed (480Mb/s) and full-speed (12Mb/s) device controller and achieves High Speed data transfer rates with a standard DMA port. The DC2003 controller enables an embedded system to function as a USB Device and to easily connect to USB Hosts and Hubs. In addition to silicon, development kits, USB Device Stack and interface code to the DC2003 for numerous RTOS' are available via our wholly owned subsidiary, SoftConnex Technologies, Inc.
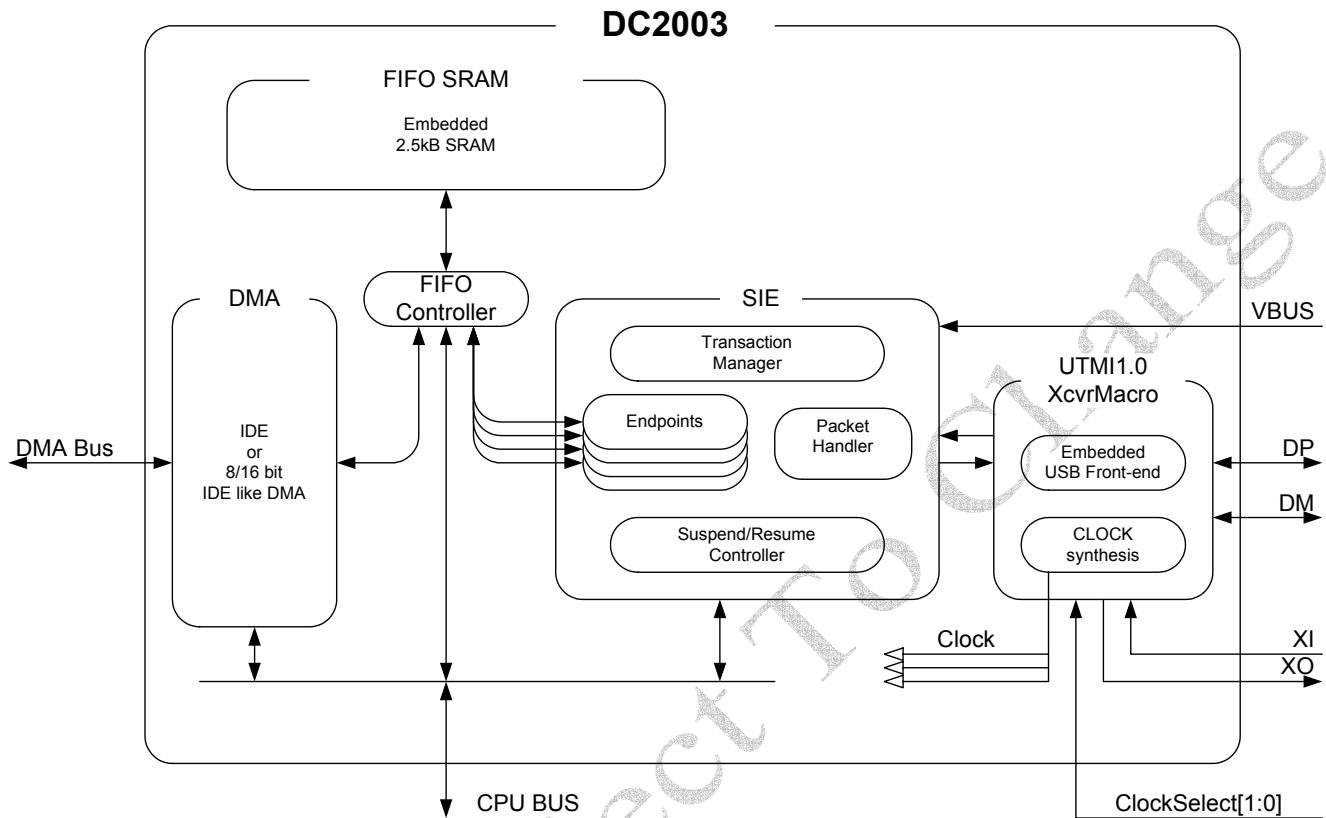
The DC2003 is optimized for cost, performance and ease of development. It can be interfaced to CISC or RISC microprocessors, microcontrollers, or digital signal processors (DSPs) using a standard 8-bit data bus and is ideal for providing High Speed USB device functions to a wide range of applications including Hard Disk Drives, DVD-ROM, Printer, Scanner and PDAs.

The complete solution including silicon and software from TransDimension and SoftConnex offers the advantages of shortened time-to-market, simplified procurement and technical support from one source.

Features

- High performance USB device controller for embedded applications
- USB Specification 2.0 compliant high-speed (480Mb/s) and full-speed (12Mb/s) device controller
- Built-in UTMI 1.0 compliant transceiver
- Includes both High Speed and Full Speed terminations
- Standard 8-bit microprocessor bus interface
- Port Interface
  - IDE Interface (Ultra ATA-66)
  - 16-bit standard interface
- Supports all four types of USB transfers (control, bulk, interrupt, and isochronous)
- Four endpoints
- 2.5Kbyte of programmable FIFO for use with endpoints
- Programmable Vendor ID & Product ID
- Input clock frequency: 12/16/20/24 MHz
- Evaluation/development kits available
- Embedded RTOS software available for popular microprocessors, RISC, CISC, and DSPs using WinCE, Linux, VxWorks, Nucleus, Lynx, QNX, pSOS, PowerTV, SMX, ThreadX, VRTX, ITRON, Symbian OS and MS-DOS operating systems with more in development
- Single 3.3V power supply
- 100 pin QFP package

Bus Configurations

DC2003

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┌──────────────────── DC2003 ────────────────────────────────────────┐
│           FIFO SRAM                                                 │
│           Embedded                                                  │
│           2.5kB SRAM                                                │
│                                                                     │
│   DMA      FIFO          SIE                          VBUS          │
│          Controller   Transaction                                  │
│                        Manager          UTMI1.0                    │
│   IDE                                   XcvrMacro                   │
│   or      Endpoints   Packet            Embedded            DP      │
│ 8/16 bit              Handler           USB Front-end              │
│ IDE like DMA                                               DM      │
│          Suspend/Resume                 CLOCK                      │
│           Controller                    synthesis                 │
│                                                                     │
│                                   Clock                    XI      │
│                                                            XO      │
│                                                                     │
│          CPU BUS                        ClockSelect[1:0]            │
└─────────────────────────────────────────────────────────────────┘
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TransDimension USB2.0 High Speed Device Controller Family

Product Name	Function	Order Number	Samples
DC2003	USB2.0 High Speed General Purpose Device Controller with IDE interface (100-pin QFP)	TDDC2003-000C	Production parts in limited quantities available Jan '03
DC2013	USB2.0 High Speed General Purpose Device Controller with DMA interface (64-pin QFP)	TDDC2013-000C	Engineering Samples in limited quantities available now

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