IDT™ Interprise™ Integrated Communication Processor

RC32434
Product Brief

Features List

- 32-bit MIPS instruction set architecture (ISA) CPU core
  - *100% compatible with MIPS32 specification*
  - *8KB/8KB instruction/data caches, 4-way set associative*
  - *Pipeline frequency options up to 400MHz*
  - *In-circuit emulator interface compatible with v2.5 of the EJTAG Specification*
  - *MMU support*
- High-performance double date rate memory controller
  - *Supports x16 external memory*
  - *Supports up to 1Gb*
  - *Interface operating at CPU pipeline speed*
- General memory controller
  - *Dedicated interface operating up to 200MHz*
  - *Supports x8 peripheral*
  - *Four chip select signals*
- 32-bit PCI controller
  - *Operates up to 66MHz*
  - *Version 2.2 compatible*
  - *On-chip arbiter supporting up to six external bus masters*
  - *Host and satellite modes supported*
  - *Capable of sustaining 160MBps*
- One 10/100Mbps Ethernet controller
  - *Provides industry-standard MII or RMII external interface*
- DMA controller
  - *6 DMA channels*
- I^2C Bus
  - *Supports standard 100 Kbps mode as well as 400 Kbps fast mode*
  - *Supports 7-bit and 10-bit addressing*
  - *Supports four modes: master transmitter, master receiver, slave transmitter, slave receiver*
- One 16550-compatible serial port
  - *Supporting dates rates up to 1.5Mbps*
- General-purpose I/O pins
  - *Configurable as inputs, outputs, or interrupt sources*

Device Overview

The RC32434 device expands IDT's Interprise™ Family of integrated communications processors. Featuring a MIPS CPU core, this device also includes a memory controller supporting double data rate (DDR) memory and a PCI interface capable of sustaining up to 160 MBps data transfer across the bus and featuring an on-chip PCI arbiter to simplify the design of embedded systems. The RC32434 device also includes one 10/100Mbps Ethernet port, providing an MII/RMII interface. The

Block Diagram

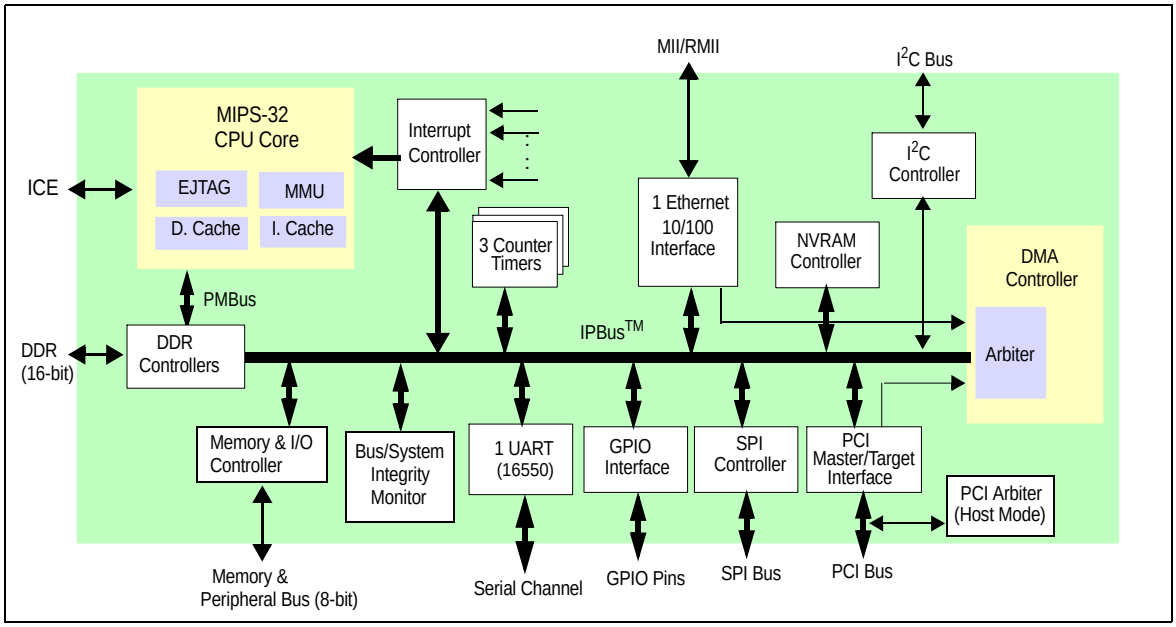

Figure 1 RC32434 Block Diagram

features and performance of the RC32434 make it ideal for applications such as media servers, multimedia adapters, and IP-based appliances. By utilizing the flexible PCI interface, customers can easily evaluate emerging technologies for their next generation platforms.

Features/Benefits

Feature	Benefit
High performance CPU core	Performs system management functions and processes data packets/cells received from I/O interfaces (Ethernet and PCI).
Single Ethernet Interface (MII)	Provides simple connection to standard Ethernet transceivers, low port count switches, and alternative I/O standards including HomePNA and WiFi (802.11).
Double Data Rate Memory Controller	Provides industry-leading memory bandwidth, enabling high performance sustainable performance across I/O interfaces.
DMA controller	Off-loads CPU core of data movement (memory to/from I/O) tasks, enabling the CPU to perform value-added tasks.
PCI Interface	Provides direct connection to broad range of networking, graphics, and storage peripherals. Optimized for PCI to memory and device to device transfers.
SPI interface	Provides direct connection to industry-standard slow speed serial peripherals.

Table 1 RC32434 Features and Benefits

RC32434 Feature Comparisons

Feature	RC32334	RC32438	RC32434
Maximum CPU frequency (MHz)	150	300	400
Maximum memory bus interface speed (MHz)	75	150	200
On-chip cache sizes I/D (KB)	8/2	16/16	8/8
PCI bus interface	Yes	Yes	Yes
Number of bus masters supported by arbiter	3	6	6
Sustained bandwidth across PCI (MBps)	40	160	160
Number of Ethernet ports	0	2	1
I2C hardware module	No	Yes	No
SPI interface	Yes	Yes	Yes
Number of serial ports	2	2	1
Package	256-pin BGA	416-pin BGA	256-pin BGA

Table 2 Feature Comparisons

Disclaimer

Any material presented herein should not be construed as an offer for sale.