SHARP®

Integrated Circuits Group

LH79402 Universal Microcontroller

APPLICATIONS:
Network Computers
Telecom Equipment
Datacom and Networking Equipment
Office Automation Devices
Portable Instrumentation
Medical Equipment
Industrial Equipment
Set Top Boxes
Internet Appliances

FEATURES

- Highly integrated single chip
- High performance, low power
- 50 MHz system clock
- 32-bit ARM7TDMI™ RISC core
- 26-bit external address bus
- 32-bit external data bus
- 8K on-chip memory
  - Cache and/or SRAM
- On-chip programmable PLL (32.768 kHz XTAL)
- Clock and power management
- On-chip interrupt controller
- Two 16C550-class UARTs
- Universal IR communication controller
  - 4 Mbps and 115.2 kbps
  - DASK
- Real-time clock (RTC)
- Two 32-bit DMA channels
- One 16-bit pulse width modulator
- Flexible programmable memory interface
  - No glue logic required
  - SRAM/DRAM/ROM/Flash
  - Eight chip enables for SRAM/Flash/ROM
  - Two RAS and four CAS lines for DRAM
- 40 programmable parallel I/O
- Three 82C54-class counters/timers
- Hardware watchdog timer
- Little Endian
- JTAG interface
- Operating conditions
  - 3.0 V to 3.6 V
  - Industrial temp -40°C to +85°C

DESCRIPTION

The LH79402 Universal Microcontroller is an ARM7TDMI™ Thumb™ RISC-based System-on-chip with a very high level of integration, including write-back instruction/data cache, high speed static RAM, a no-glue memory interface, serial and parallel communications ports and a host of other peripherals. A cross-bar switch between the various I/O signals and the physical pins of the LH79402 gives the application designer complete freedom to choose the optimum combination of on-chip peripherals for any application.

These features make the LH79402 the ideal choice for many of today's and tomorrow's demanding applications requiring high performance, small area, minimal external components, low power consumption, and a very low system cost.

DEVELOPMENT TOOLS

The ARM™ Software Development Toolkit provides a complete integrated environment for software development. The toolkit, available on Windows 95/NT and SunOS 4.1 platforms, contains:

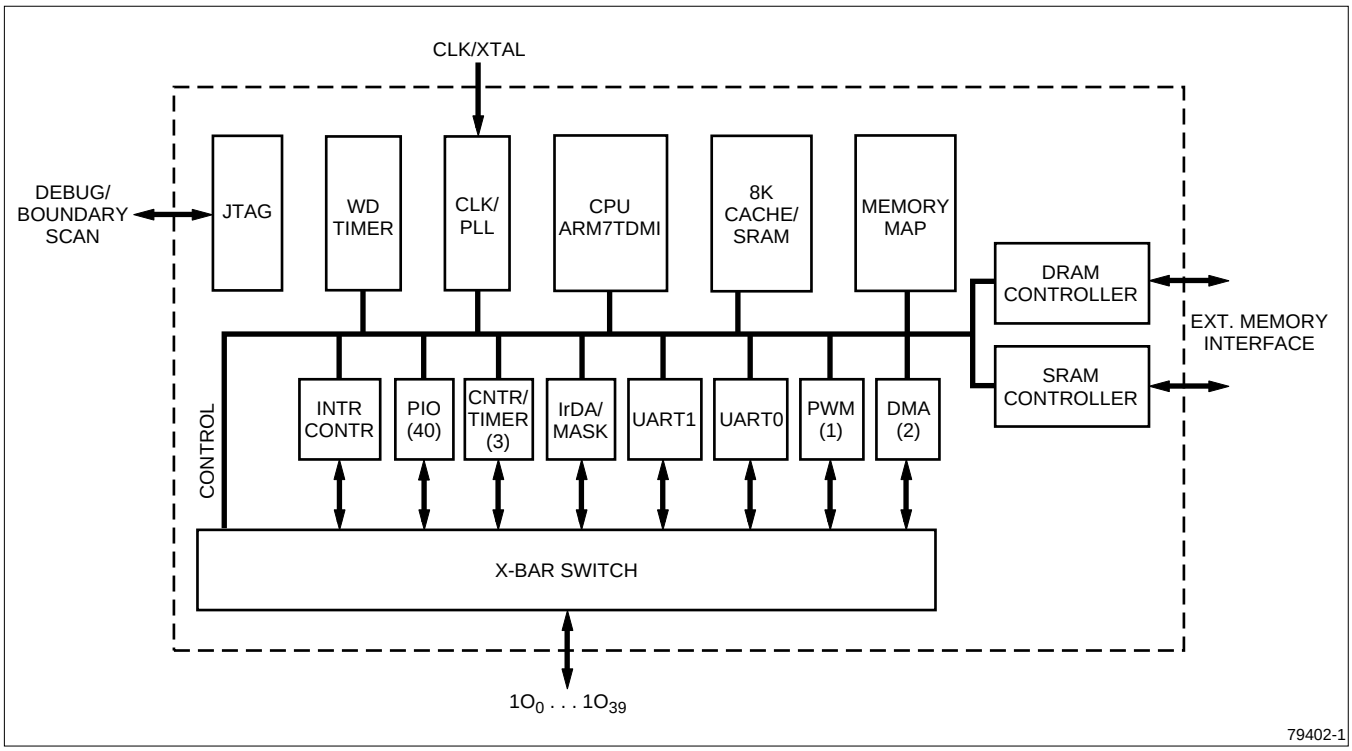
- ANSI-C optimized compiler
- ARM™ assembler
- Software simulation via ARMulator™
- Tools for benchmarking and profiling code
- Interface to EmbeddedICE™ debugger

Advanced debugging is accomplished via the on-chip debug support logic using the ARM™ EmbeddedICE™.

Sharp also provides a development board that contains a direct interface to Flash, EPROM, SRAM, and DRAM memory options, multiple onboard voltage generators (+3.3 V, +5 V, ±12 V), two bi-directional IrDA interfaces, two RS-232 interfaces, JTAG port, expansion connectors, and a keypad inter-face. The development board makes product development highly efficient and effective and dramatically reduces time-to-market.

The information for this document is from the Preliminary Data Sheet LH79402.

LH79402 BLOCK DIAGRAM



DEVELOPMENT BOARD BLOCK DIAGRAM