



**SHARP's New Line
of MCUs and
System-on-Chips**

APPLICATIONS:	
PDA's	Pocket PCs
•	•
Handheld Games	Smart Phones
•	•
Media Players	Web Pads
•	•
Thin Client	Test and Measurement

LH7A400 System-on-Chip Solution for Color LCD Applications

FEATURES

- ARM922T™ Core:
 - 32-bit ARM9TDMI™ RISC Core
 - 16KB Cache: 8KB Instruction Cache and 8KB Data Cache
 - MMU (WinCE™ Enabled)
- High Performance (200 MHz)
- 80KB On-Chip Memory
- External Bus Interface
 - 100 MHz
 - Asynchronous SRAM/ROM/Flash
 - Synchronous DRAM/Flash
 - PCMCIA
 - Compact Flash
- Clock and Power Management
 - 32.768 kHz and 14.7456 MHz Oscillators
 - Programmable PLL
- Low Power Modes
 - Run (180 mA), Halt, Standby (20 µA)
- Programmable LCD Controller
 - Up to 1,024 × 768 Resolution
 - Supports STN, Color STN, HR-TFT, TFT
 - Up to 64 k Colors and 15 Gray Shades
- DMA (10 Channels)
 - AAC (AC97)
 - MMC
 - USB
- USB Device Interface (USB1.1)
- Synchronous Serial Port (SSP)
 - Motorola SPI™
 - Texas Instruments SSI
 - National Semiconductor MICROWIRE™
- Three Timers
- Three UARTs
 - Classic IrDA (115 kbit/s)

- Smart Card Interface (ISO7816)
- DC-to-DC Converters
- MultiMediaCard Interface
- AAC (AC97) Codec Interface
- Smart Battery Monitor Interface
- Real Time Clock (RTC)
- Up to 60 General Purpose I/Os
- Programmable Interrupt Controller
- Watchdog Timer
- JTAG Debug Interface and Boundary Scan
- Operating Voltage
 - 1.8 V Core
 - 3.3 V Input/Output (1.8 V I/O Optional)
- Temperature
 - 0°C to +70°C Commercial
 - -40°C to +85°C Industrial (With Clock Frequency Reduction)
- 256-Ball PBGA Package

DESCRIPTION

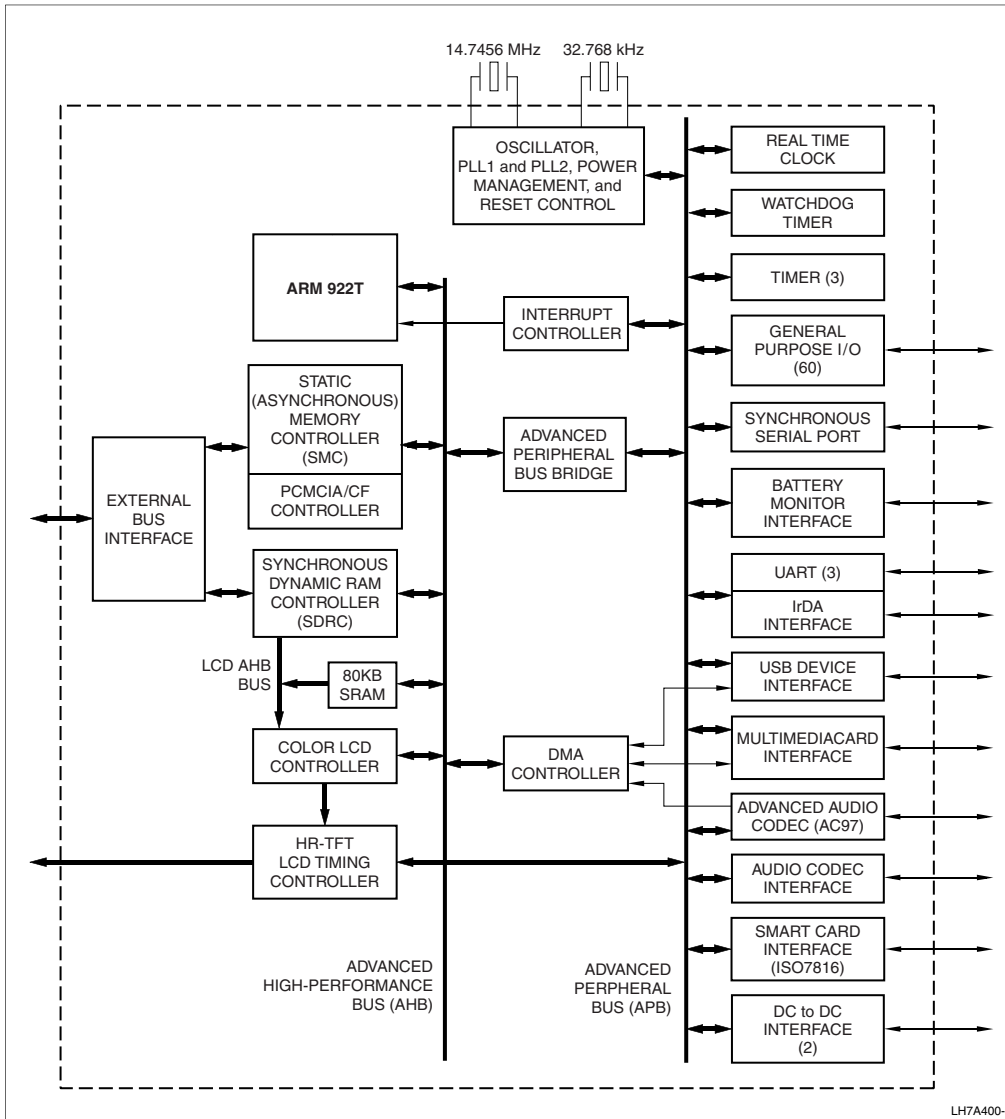
The LH7A400, powered by an ARM922T, is a complete System-on-Chip that satisfies the performance and integration requirements of emerging Internet- and multimedia-centric applications. The LH7A400 combines a high performance 32-bit ARM922T RISC, 16KB Cache, MMU, color LCD controller, and local SRAM. Also included are a number of essential peripherals such as interfaces to various types of memory media, DMA Controller, Serial and Parallel Interfaces, USB, Infrared Support, Counter/Timers, Real Time Clock, Watchdog Timer, and an on-chip Phase Lock Loop.

This high level of integration lowers overall system cost, reduces development cycle time and accelerates product introduction. The LH7A400's fully static design, power management unit, low voltage operation (1.8 V Core, 1.8 V or 3.3 V I/O), on-chip PLL, and low power RISC core provide high performance at a low current draw.

PRELIMINARY PRODUCT INFORMATION

SHARP

LH7A400 BLOCK DIAGRAM



SHARP[®]

MICROELECTRONICS OF THE AMERICAS

Regional Sales Offices

North American Headquarters

Camas, WA
Ph (360) 834-2500
Fax (360) 834-8903

West

Huntington Beach, CA
Ph (714) 903-4600
Fax (714) 903-0295

San Diego, CA
Ph (858) 597-0982
Fax (858) 597-8701

San Jose, CA
Ph (408) 436-4900
Fax (408) 436-0924

East

Boca Raton, FL
Ph (561) 347-8690
Fax (561) 347-8692

Burlington, MA
Ph (781) 270-7979
Fax (781) 229-9117

Carey, NC
Ph (919) 460-0695
Fax (919) 460-0795

New York, NY
Ph (212) 945-9410
Fax (212) 945-9412

Pittsburgh, PA
Ph (412) 381-1191
Fax (412) 381-1192

Central

Schaumburg, IL
Ph (847) 925-9150
Fax (847) 925-9172

Auburn Hills, MI
Ph (248) 391-5404
Fax (248) 391-6165

Austin, TX
Ph (512) 349-7262
Fax (512) 349-7002

DFW Airport, TX
Ph (972) 456-8560
Fax (972) 456-0360

Houston, TX
Ph (281) 955-9909
Fax (281) 955-9910

Muskego, WI
Ph (414) 529-9568
Fax (414) 529-9569

Distributors

All American

San Jose, CA
Ph (408) 441-1300
Fax (408) 437-8970

Arrow Electronics

Westlake Village, CA
Ph (818) 496-7410
Fax (818) 496-5201

Avnet Electronics

Phoenix, AZ
Ph (480) 643-8000
Fax (480) 643-8766

Future Electronics

Canada
Ph (514) 694-7710
Fax (514) 695-3707

Repron Electronics

Tampa, FL
Ph (800) 659-1361
Fax (813) 854-4695

Europe

SHARP Microelectronics
Europe
Hamburg, Germany
Ph (49) 40-2376-2286
Fax (49) 40-2376-2232

Asia

SHARP Corporation
Osaka, Japan
Ph (81) 6-6621-1221
Fax (81) 6117-725300

Product Information: 1-800-642-0261

World Wide Website: <http://www.sharpsma.com>

Specifications are subject to change without notice. Suggested applications (if any) are for standard use; See Important Restrictions for limitations on special applications. See Limited Warranty for SHARP's product warranty. The Limited Warranty is in lieu, and exclusive of, all other warranties, express or implied. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR USE AND FITNESS FOR A PARTICULAR PURPOSE, ARE SPECIFICALLY EXCLUDED. In no event will SHARP be liable, or in any way responsible, for any incidental or consequential economic or property damage.