Intel® Pentium® M Processor Low Voltage 738 for Embedded Computing

Intel in Communications

Product Overview

The Intel® Pentium® M processor low voltage 738 utilizes a new microarchitecture to meet the current and future demands of high-performance, low-power embedded computing, making it ideal for communications, transaction terminal, interactive client, and industrial automation applications. While incorporating advanced processor technology, it remains software-compatible with previous members of the Intel® microprocessor family.

The Intel Pentium M processor low voltage 738 is validated with the Intel® E7501 chipset and the Intel® 855GME chipset. The Intel E7501 chipset expands the processor's performance and I/O bandwidth capability for embedded computing, particularly within the communications market segment. It provides up to 4 GB single- or dual-channel DDR 200 memory, and features configurable, optional Error Correcting Code (ECC) operation.

The Intel 855GME chipset provides up to 2 GB of DDR 333 memory with configurable optional ECC operation. It also offers integrated graphics support via Intel® Extreme Graphics 2 Technology which provides enhanced graphics features including dual independent display support.

Product Highlights

- Available at 1.4 GHz with a 400 MHz processor side bus delivering up to 3.2 GB of data per second into and out of the processor
- Features a new microarchitecture designed from the ground up:
  - Dedicated hardware stack manager employs sophisticated hardware control for improved stack management

  - Micro-ops fusion for improved instruction execution
  - Advanced branch prediction capability
  - 2 MB Level 2 Advanced Transfer Cache (ATC) delivers a high data throughput channel between the Level 2 cache and the processor core
- Second-generation Streaming SIMD Extensions (Streaming SIMD Extensions 2) capability adds 144 new instructions, including 128-bit SIMD integer arithmetic and 128-bit SIMD double-precision floating-point operation
- Manufactured on state-of-the-art 90nm process technology
- Support for uni-processor designs
- Fully compatible with existing Intel® Architecture-based software
- µFC-BGA 479 package
- Embedded life cycle support

The Intel Pentium M processor low voltage 738/Intel E7501 chipset platform provides the performance and chipset I/O bandwidth to support multiple Gb Ethernet controllers in ultra-dense environments. The platform enables outstanding instruction execution/watt and is ideal for high-performance blades. The Intel Pentium M processor low voltage 738/Intel 855GME chipset platform provides a low-power solution while providing cutting-edge integrated graphics support via Intel Extreme Graphics 2 Technology.

Features	Benefits
Efficient execution	
■ Advanced branch prediction	■ Fast program execution
■ Power optimized processor system bus	■ Low exception handling overhead
■ Micro-op fusion	■ Excellent packet manipulation: load, store
■ Hardware stack manager	■ Low context switching latency
Power-optimized circuitry	
■ Cache and processor bus power management	■ Low average power consumption
■ Next-generation Intel SpeedStep® technology	■ Multiple frequency/voltage operating points
Data supply	
■ Large L1/L2 caches	■ Fast large-table look-ups: routing tables
High I/O bandwidth	
■ Intel® E7501 chipset supports up to six PCI-X segments	■ High packet throughput and processing
Graphics support	
■ Intel® 855GME chipset provides integrated graphics support via Intel® Extreme Graphics 2 Technology	■ Cutting-edge graphics performance while reducing system cost

Intel® Pentium® M Processor Low Voltage 738 for Embedded Computing

Product Number	Core Speed	External Bus Speed	L2 Cache	Thermal Design Power	VID	Tjunction	Package
RJ80536LC0172M	1.4 GHz	400 MHz	2 MB	10 watts	1.116V	100° C	µFC-BGA 479

Intel Access

Developer's Site:	developer.intel.com
Embedded Intel® Architecture Home Page:	www.intel.com/design/intarch
Intel Technical Documentation Center:	www.intel.com/go/techdoc
	(800) 548-4725 7 a.m. to 7 p.m. CST (U.S. and Canada)
	International locations please contact your local sales office.
General Information Hotline:	(800) 628-8686 or (916) 356-3104 5 a.m. to 5 p.m. PST

For more information, visit the Intel Web site at: **developer.intel.com**

UNITED STATES AND CANADA
Intel Corporation
Robert Noyce Bldg.
2200 Mission College Blvd.
P.O. Box 58119
Santa Clara, CA 95052-8119
USA

EUROPE
Intel Corporation (UK) Ltd.
Pipers Way
Swindon
Wiltshire SN3 1RJ
UK

ASIA-PACIFIC
Intel Semiconductor Ltd.
32/F Two Pacific Place
88 Queensway, Central
Hong Kong, SAR

JAPAN
Intel Kabushiki Kaisha
P.O. Box 115 Tsukuba-gakuen
5-6 Tokodai, Tsukuba-shi
Ibaraki-ken 305
Japan

SOUTH AMERICA
Intel Semicondutores do Brazil
Rue Florida, 1703-2 and CJ22
CEP 04565-001 Sao Paulo-SP
Brazil

Printed in USA 0604/DLC/OCG/XX/PDF Please Recycle 302905-001EN