

Product Brief

Intel® Pentium® M Processors
on 90nm Process

Embedded Computing



Intel® Pentium® M Processors on 90nm Process with 2 MB L2 Cache

Product Overview

Intel® Pentium® M processors on 90-nanometer (nm) process utilize a new microarchitecture to meet the current and future demands of high-performance, low-power embedded computing, making them ideal for medium-to-large enterprise communications, transaction terminal, interactive client, and industrial automation applications. While incorporating advanced processor technology, they remain software-compatible with previous members of the Intel® microprocessor family.

Intel Pentium M processors on 90nm process are available in both standard and low-voltage versions, providing a variety of performance and power options.

They are validated with the Intel® 3100, Mobile Intel® 915GME Express, Intel® E7520, Intel® E7320, Intel® E7501, and Intel® 855GME chipsets. Each chipset, when paired with the Intel Pentium M processor on 90nm process, helps create a unique platform that addresses a variety of customer requirements.

Product Highlights

- Performance and power options:
 - Intel® Pentium® M processor 760^a at 2.0 GHz core speed and 533 MHz front-side bus (FSB) speed
 - Intel® Pentium® M processor 745^a at 1.8 GHz core speed and 400 MHz FSB speed
 - Intel® Pentium® M processor Low Voltage 738^a at 1.4 GHz core speed and 400 MHz FSB speed
- Support across several chipsets:
 - Mobile Intel 915GME Express and Intel E7520 chipsets support Intel Pentium M processors 760, 745, and 738
 - Intel 3100, Intel E7320, Intel E7501, and Intel 855GME chipsets support Intel Pentium M processors 745 and 738
- 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
- 478 µFC-PGA and 479 µFC-BGA packages
- Embedded life cycle support
- Along with a strong ecosystem of hardware and software vendors, including members of the Intel® Communications Alliance (intel.com/go/ica), Intel helps cost-effectively meet development challenges and speed time-to-market



Features

Efficient execution

- Advanced branch prediction
- Power optimized processor system bus
- Micro-ops fusion
- Hardware stack manager

Power-optimized circuitry

- Cache and processor bus power management
- Enhanced Intel SpeedStep® technology

Data supply

- Large L1/L2 caches

High I/O bandwidth

- Intel® 3100, Mobile Intel® 915GME Express, Intel® E7520, and Intel® E7320 chipsets support PCI Express* technology

Graphics support

- Mobile Intel 915GME Express and Intel® 855GME chipsets provide support via Intel® Extreme Graphics 2 Technology

Benefits

- Fast program execution
- Low exception handling overhead
- Excellent packet manipulation: load, store
- Low context switching latency

- Low average power consumption
- Multiple frequency/voltage operating points

- Fast large-table look-ups: routing tables

- High packet throughput and processing

- Cutting-edge graphics performance while reducing system cost

Intel® Pentium® M Processors on 90nm Process

Product Number	Core Speed	Front-Side Bus Speed	L2 Cache	Thermal Design Power	VID	Tjunction	Package
Intel® Pentium® M processor 760³							
RH80536GE0412M	2.0 GHz	533 MHz	2 MB	27 watts	1.260V-1.356V	0-100° C	478 µFC-PGA
RJ80536GE0412M	2.0 GHz	533 MHz	2 MB	27 watts	1.260V-1.356V	0-100° C	479 µFC-BGA
Intel® Pentium® M processor 745³							
RH80536GC0332M	1.8 GHz	400 MHz	2 MB	21 watts	1.276V-1.340V	0-100° C	478 µFC-PGA
RJ80536GC0332M	1.8 GHz	400 MHz	2 MB	21 watts	1.276V-1.340V	0-100° C	479 µFC-BGA
Intel® Pentium® M processor Low Voltage 738³							
RJ80536LC0172M	1.4 GHz	400 MHz	2 MB	10 watts	1.116V	0-100° C	479 µFC-BGA

³Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See http://www.intel.com/products/processor_number for details.

Intel Access

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

INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH INTEL® PRODUCTS. NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY THIS DOCUMENT. EXCEPT AS PROVIDED IN INTEL'S TERMS AND CONDITIONS OF SALE FOR SUCH PRODUCTS, INTEL ASSUMES NO LIABILITY WHATSOEVER, AND INTEL DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO SALE AND/OR USE OF INTEL PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

Intel products are not intended for use in medical, life saving, life sustaining, critical control or safety systems, or in nuclear facility applications. Intel may make changes to specifications and product descriptions at any time, without notice. Designers must not rely on the absence or characteristics of any features or instructions marked "reserved" or "undefined." Intel reserves these for future definition and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to them. The information here is subject to change without notice. Do not finalize a design with this information. The products described in this document may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request. Contact your local Intel sales office or your distributor to obtain the latest specifications and before placing your product order. Copies of documents which have an order number and are referenced in this document, or other Intel literature, may be obtained by calling 1-800-548-4725, or by visiting www.intel.com <http://www.intel.com/>.

Copyright © 2007 Intel Corporation. All rights reserved.

Intel, the Intel logo, Intel. Leap ahead., Intel. Leap ahead. logo, Pentium, and Intel SpeedStep are trademarks of Intel Corporation in the U.S. and other countries.

*Other names and brands may be claimed as the property of others.

