

## 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<sup>a</sup> at 2.0 GHz core speed and 533 MHz front-side bus (FSB) speed
  - Intel® Pentium® M processor 745<sup>a</sup> at 1.8 GHz core speed and 400 MHz FSB speed
  - Intel® Pentium® M processor Low Voltage 738<sup>a</sup> 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  $\mu$ FC-PGA and 479  $\mu$ FC-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](http://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
<b>Intel® Pentium® M processor 760<sup>3</sup></b>							
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
<b>Intel® Pentium® M processor 745<sup>3</sup></b>							
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
<b>Intel® Pentium® M processor Low Voltage 738<sup>3</sup></b>							
RJ80536LC0172M	1.4 GHz	400 MHz	2 MB	10 watts	1.116V	0-100° C	479 µFC-BGA

<sup>3</sup>Intel 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](http://www.intel.com/products/processor_number) for details.

## Intel Access

Embedded Intel® Architecture Home Page: [intel.com/design/intarch](http://intel.com/design/intarch)

Developer's Site: [intel.com/design](http://intel.com/design)

Intel in Embedded and Communications: [intel.com/go/embedded](http://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)

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