## Motorola PowerPC™ Processors

Motorola PowerPC CPUs deliver the processing speed required by high performance systems in internetworking, communications infrastructure, telecommunications systems, computing and more. Motorola integrated PowerPC processors offer cost-effective, highly integrated solutions for the full spectrum of networking, transportation and industrial control, and consumer applications. For additional information on any of the processors listed below, please visit the PowerPC website at [http://motorola.com/PowerPC](http://motorola.com/PowerPC).

### Motorola PowerPC™ CPUs

<table>
<thead>
<tr>
<th>PowerPC 603e™</th>
<th>MPC740™</th>
<th>MPC745™</th>
<th>MPC750™</th>
<th>MPC755™</th>
<th>MPC7400</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-133 MHz</td>
<td>200-300 MHz</td>
<td>200-266 MHz</td>
<td>266-333 MHz</td>
<td>300-350 MHz</td>
<td>300-400 MHz</td>
</tr>
<tr>
<td>100 MHz</td>
<td>200 MHz*</td>
<td>200 MHz</td>
<td>300 MHz</td>
<td>300 MHz</td>
<td>300 MHz</td>
</tr>
<tr>
<td>133 MHz</td>
<td>266 MHz</td>
<td>233 MHz</td>
<td>333 MHz</td>
<td>350 MHz</td>
<td>350 MHz</td>
</tr>
<tr>
<td>200 MHz</td>
<td>233 MHz</td>
<td>266 MHz</td>
<td>266 MHz</td>
<td>266 MHz</td>
<td>266 MHz</td>
</tr>
<tr>
<td>266 MHz</td>
<td>300 MHz</td>
<td>333 MHz</td>
<td>350 MHz</td>
<td>350 MHz</td>
<td>350 MHz</td>
</tr>
</tbody>
</table>

### Bus Interface

- 64 & 32-bit modes
- 16 KB inst
- 16 KB data
- 32 KB inst
- 32 KB data
- 32 KB inst
- 32 KB data
- 32 KB inst
- 32 KB data

### L1 Cache

- 16 KB inst
- 16 KB data
- 32 KB inst
- 32 KB data
- 32 KB inst
- 32 KB data
- 32 KB inst
- 32 KB data

### Backside L2 Cache Support

- 5.8W/8W
- 5.8W/8W
- 5.8W/8W
- 5.8W/8W

### Typical/Maximum Power Dissipation

- 11.5W
- 11.5W
- 11.5W
- 11.5W
- 11.5W

### Other Performance

- 6.9 @ 266 MHz
- 410 MIPS
- 488 MIPS
- 640 MIPS
- 733 MIPS
- 917 MIPS

* see hardware spec for operation at lower frequencies

### Motorola PowerPC™ Integrated Processors

<table>
<thead>
<tr>
<th>8260</th>
<th>8240</th>
<th>860P</th>
<th>860</th>
<th>855T</th>
<th>850</th>
<th>823</th>
<th>555</th>
<th>509</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 MHz</td>
<td>250 MHz</td>
<td>80 MHz</td>
<td>80 MHz</td>
<td>80 MHz</td>
<td>80 MHz</td>
<td>80 MHz</td>
<td>80 MHz</td>
<td>80 MHz</td>
</tr>
<tr>
<td>Drystone Mips</td>
<td>280 (200 MHz)</td>
<td>352 (250 MHz)</td>
<td>105 (80 MHz)</td>
<td>105 (80 MHz)</td>
<td>105 (80 MHz)</td>
<td>105 (80 MHz)</td>
<td>105 (80 MHz)</td>
<td>105 (80 MHz)</td>
</tr>
<tr>
<td>Microprogrammable Module</td>
<td>CPM1</td>
<td>CPM1</td>
<td>CPM1</td>
<td>CPM1</td>
<td>CPM1</td>
<td>CPM1</td>
<td>CPM1</td>
<td>CPM1</td>
</tr>
<tr>
<td>Cache (instruction/data)</td>
<td>16K/16K</td>
<td>16K/16K</td>
<td>16K/8K</td>
<td>4K/4K</td>
<td>4K/4K</td>
<td>2K/1K</td>
<td>2K/1K</td>
<td>448K Flash</td>
</tr>
<tr>
<td>Translation Lookaside Buffers (TLBs)</td>
<td>64-entry</td>
<td>64-entry</td>
<td>32-entry</td>
<td>32-entry</td>
<td>32-entry</td>
<td>8-entry</td>
<td>8-entry</td>
<td>—</td>
</tr>
<tr>
<td>Floating Point Unit (FPU)</td>
<td>Yes</td>
<td>Yes</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Yes</td>
</tr>
<tr>
<td>Parallel</td>
<td>64 bits</td>
<td>64 bits</td>
<td>59 bits</td>
<td>59 bits</td>
<td>59 bits</td>
<td>53 bits</td>
<td>53 bits</td>
<td>176 bits</td>
</tr>
<tr>
<td>Typical Power Dissipation</td>
<td>2.0W (120 MHz)</td>
<td>3.0W (120 MHz)</td>
<td>500 mW (50 MHz)</td>
<td>500 mW (50 MHz)</td>
<td>500 mW (50 MHz)</td>
<td>500 mW (50 MHz)</td>
<td>500 mW (50 MHz)</td>
<td>170 mW (25 MHz)</td>
</tr>
<tr>
<td>Miscellaneous Peripherals</td>
<td>2 SMIC, 2 MISC, 1 PC, 1 SCI, 1 IOM, 3 FGG, 2 NCCD</td>
<td>2 SMIC, 2 MISC, 1 PC, 1 SCI, 1 IOM, 3 FGG, 2 NCCD</td>
<td>—</td>
<td>2 SMIC, 2 MISC, 2 IOM, 2 SCI, 1 IOM, 3 FGG, 2 NCCD</td>
<td>—</td>
<td>—</td>
<td>2 LM, 2 CAN, 2 TPL, 2 GPIO, 2 SCI, 1 SPI, 2 CAN, 2 SPI, 2 GPIO, 1 SPI, 2 CAN, 1 SPI, 2 GPIO</td>
<td></td>
</tr>
</tbody>
</table>

1. Communications Processor Module
2. Time Processing Unit
3. PCI Interface

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For More Information On This Product, Go to: [www.freescale.com](http://www.freescale.com)
### Motorola PowerPC™ Microprocessor Strategy

**Core-Based Design**
- MPU
- Integrated

**Technology:**
- Design
- Manufacturing

**Customer Focus**
- Products
- Lifecycle

<table>
<thead>
<tr>
<th>Generation</th>
<th>Description</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>First PowerPC processor</td>
<td>601, 603, 604, 5xx, 8xx</td>
</tr>
<tr>
<td>G2</td>
<td>Specific MPUs targeting computing or embedded markets</td>
<td>750, 82xx, 83xx, 84xx</td>
</tr>
<tr>
<td>G3</td>
<td>Architectural enhancements providing high performance MPU for multiple markets</td>
<td>74xx, 75xx, 84xx, 85xx</td>
</tr>
<tr>
<td>G4</td>
<td>AltiVec™ technology, On-die L2 cache, Core-based design approach, Accelerated core proliferation</td>
<td>75xx, 85xx</td>
</tr>
<tr>
<td>G5</td>
<td>Extensible architecture, New pipeline, New bus topology, 64 &amp; 32 bit products, backwards compatibility, 0.10μ process with SOI initial G5 product, 2GHz+</td>
<td>76xx</td>
</tr>
<tr>
<td>G6</td>
<td>Increased Integration/Advanced Process Technology</td>
<td>8xx, 8xxx</td>
</tr>
</tbody>
</table>

**Increased Integration/Advanced Process Technology**
- 1991: 6xx, 7xx, 7xxx — high performance microprocessor targeting computing and high-end embedded
- 200x: 8xx, 8xxx — integrated processor targeting the Communications and Consumer markets
- 0.50μ process for initial G2 product
- 0.27μ process for initial G3 product
- 0.10μ process with SOI initial G5 product
- 0.15μ copper process for initial G4 product (migrating to SOI)
- 2GHz+