

### PowerPC 604e™ RISC Microprocessor Family: PID9v-604e (Sirocco) Bin Specification

This document defines a unique part number for a PowerPC 604e microprocessor manufactured by Motorola. It describes changes to recommended operating conditions and revised electrical specifications, as applicable, from those described in the *PowerPC 604e RISC Microprocessor Family: PID9v-604e Hardware Specifications*. Any functional differences (errata) for these parts from the functional description provided in the *PowerPC™ 604 RISC Microprocessor User's Manual* (order # MPC604UM/AD) or its addendum (order # MPC604UMAD/AD) are described in a separate Errata List available from your local Motorola sales office.

Specifications provided in this data sheet supercede those in Revision 1 (11/96) of the *PID9v-604e Hardware Specifications* (order #: MPC604E9VEC/D); specifications not addressed herein are unchanged.

Note that headings and table numbers in this data sheet are not consecutively numbered. They are intended to correspond to the heading or table affected in the general hardware specifications.

Part numbers addressed in this document and a summary of their differences from the general specification are listed in Table A. For more detailed ordering information see Table 14.

**Table A. Part Numbers Addressed by this Data Sheet**

Motorola Part Number	Operating Conditions			Significant Differences
	CPU Frequency	Vdd	T <sub>J</sub> (°C)	
XPC604ERX166PD	166 MHz	2.65 to 2.85 V	0 to 85	Specification changes for different operating conditions.
XPC604ERX180PD	180 MHz	2.65 to 2.85 V	0 to 85	Specification changes for different operating conditions.
XPC604ERX200PD	200 MHz	2.65 to 2.85 V	0 to 85	Specification changes for different operating conditions.
Note: The X prefix in a Motorola PowerPC part number designates a "Pilot Production Prototype" as defined by Motorola SOP 3-13. These are from a limited production volume of prototypes manufactured, tested and Q.A. inspected on a qualified technology to simulate normal production. These parts have only preliminary reliability and characterization data. Before pilot production prototypes may be shipped, written authorization from the customer must be on file in the applicable sales office acknowledging the qualification status and the fact that product changes may still occur while shipping pilot production prototypes				

#### 1.1.4 DC Electrical Characteristics

Table 2 describes the changed DC operating conditions for the 604e part numbers described herein..

**Table 2. Recommended Operating Conditions**

Characteristic	Symbol	Value	Unit
Core supply voltage	Vdd	2.65 to 2.85	V
PLL supply voltage	AVdd	2.65 to 2.85	V
Junction temperature	T <sub>J</sub>	0 to 85	°C

Table 5 provides the power dissipation for these changed operating conditions.

**Table 5. Power Consumption**

Vdd = AVdd = 2.75 ± 0.1 V dc, OVdd = 3.3 ± 5% V dc, GND = 0 V dc, 0 T<sub>J</sub> 85 °C

CPU Clock: SYSCLK	Processor Core Frequency			Unit	Notes
	166 MHz	180 MHz	200 MHz		
<b>Full-On Mode</b>					

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**Table 5. Power Consumption**

Vdd = AVdd = 2.75 ± 0.1 V dc, OVdd = 3.3 ± 5% V dc, GND = 0 V dc, 0 T<sub>J</sub> 85 °C

CPU Clock: SYSCLK	Processor Core Frequency			Unit	Notes
	166 MHz	180 MHz	200 MHz		
Typical	12.1	13.0	14.3	W	
Maximum	15.0	17.0	19.5	W	
<b>Nap Mode</b>					
Typical	.872	.888	.911	W	
Maximum	1.10	1.11	1.13	W	

Notes:

1.

## 1.9 Ordering Information

Table 14 provides the ordering information for the 604e part numbers described herein..

**Table 14. Ordering Information for the PB-604e Microprocessor**

Package Type	Device Rev	Process	Mask Code	CPU Frequency (MHz)	Part Number per PID9v-604e HW Specification	Application Specific Motorola Part Number
255 CBGA	2.4	PPC2.0	75G64W	166	XPC604ERX166LD	XPC604ERX166PD
				180	XPC604ERX180LD	XPC604ERX180PD
				200	XPC604ERX200LD	XPC604ERX200PD

## 1.10 Part Marking

This section provides information on Motorola device marking. Parts are marked as the example shown in Figure A.



BGA

Notes:


MMMMMM is the 6-digit mask code

YWWLA is the traceability code

**Figure A. Motorola Part Marking for BGA Devices**

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