

## Application-Specific Information

### 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)	
XPC604ERX180PE	180 MHz	2.40 to 2.60 V	0 to 85	Specification changes for different operating conditions.
XPC604ERX200PE	200 MHz	2.40 to 2.60 V	0 to 85	Specification changes for different operating conditions.
XPC604ERX225PE	225 MHz	2.40 to 2.60 V	0 to 85	Specification changes for different operating conditions.
XPC604ERX233PE	233 MHz	2.45 to 2.55 V	0 to 65	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	Notes
Core supply voltage	Vdd	2.40 to 2.60	V	1
PLL supply voltage	AVdd	2.40 to 2.60	V	1
Junction temperature	T <sub>J</sub>	0 to 85	°C	1
Core supply voltage	Vdd	2.45 to 2.55	V	2
PLL supply voltage	AVdd	2.45 to 2.55	V	2
Junction temperature	T <sub>J</sub>	0 to 65	°C	2
Notes: 1. XPC604ERX200PE and XPC604ERX225PE only 2. XPC604ERX233PE only				

The PowerPC name, the PowerPC logotype, and PowerPC 604e are trademarks of International Business Machines Corporation used by Motorola under license from International Business Machines Corporation.

This document contains information on a new product under development by Motorola. Motorola reserves the right to change or discontinue this product without notice.

© Motorola Inc. 1996. All rights reserved.



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

**Table 5. Power Consumption**

CPU Clock: SYSCLK	Processor Core Frequency			Unit	Notes
	200 MHz	225 MHz	233 MHz		
<b>Full-On Mode</b>					
Typical	12.2	13.4	13.8	W	
Maximum	TBD	TBD	TBD	W	
<b>Nap Mode</b>					
Typical	.86	.89	.90	W	
Maximum	1.15	1.15	1.15	W	

Notes:

## 1.9 Ordering Information

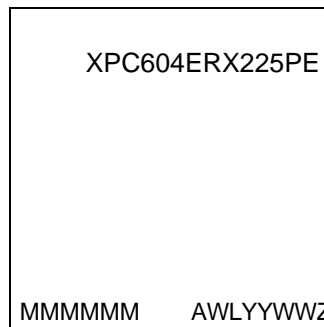
Table 14 provides the ordering information for the 604e part numbers described herein..

**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	PPC2.2	55G64W	180	MPC604ERX180LE	XPC604ERX180PE
				200	MPC604ERX200LE	XPC604ERX200PE
				225	MPC604ERX225LE	XPC604ERX225PE
				233	MPC604ERX233LE	XPC604ERX233PE

## 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
- AWLYYWWZ is the traceability code

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

Information in this document is provided solely to enable system and software implementers to use PowerPC microprocessors. There are no express or implied copyright licenses granted hereunder to design or fabricate PowerPC integrated circuits or integrated circuits based on the information in this document.

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters can and do vary in different applications. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any other unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part.

Motorola and  are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

IBM is a registered trademark of International Business Machines Corporation.