

- XPC740PRX266LB
- XPC740PRX300LB
- XPC750PRX300LB
- XPC750PRX300PB
- XPC750PRX333PB
- XPC750PRX366PB
- XPC740PRX300RB
- XPC750PRX300RB
- XPC750PRX333RB
- XPC750PRX366RB

Application-Specific Information

MPC750P (Conan) Part Number Specifications

This document defines a part number for an MPC750 microprocessor manufactured by Motorola. It describes changes to recommended operating conditions and revised electrical specifications, as applicable, from those described in the *MPC750 Hardware Specifications*. Any functional differences (errata) for these parts from the functional description provided in the *MPC750 RISC Microprocessor User's Manual* (order # MPC750UM/AD) are described in a separate Errata List available from your local Motorola sales office.

Specifications provided in this data sheet supersede those in of the *MPC750 Hardware Specifications Rev 1* dated 6/98 (order #: MPC750EC/D); specifications not addressed herein are unchanged. This document is frequently updated, refer to the website at <http://www.mot.com/SPS/PowerPC/> for the latest version.

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 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 from Hardware Specification
	CPU Frequency	Vdd	T _J (°C)	
XPC740PRX266LB	266MHz	1.8 to 2.0V	0 to 105	No Change to Hardware Spec
XPC740PRX300LB	300MHz	1.8 to 2.0V	0 to 105	No Change to Hardware Spec
XPC750PRX300LB	300 MHz	1.8 to 2.0 V	0 to 105	No Change to Hardware Spec
XPC750PRX300PB	300MHz	2.0 to 2.1V	0 to 65	Modified Voltage & Temperature Specification
XPC750PRX333PB	333MHz	2.0 to 2.1V	0 to 65	Modified Voltage & Temperature Specification
XPC750PRX366PB	366MHz	2.0 to 2.1V	0 to 65	Modified Voltage & Temperature Specification
XPC740PRX300RB	300MHz	2.0 to 2.1V	0 to 105	Modified Voltage & Temperature Specification
XPC750PRX300RB	300MHz	2.0 to 2.1V	0 to 105	Modified Voltage & Temperature Specification
XPC750PRX333RB	333MHz	2.0 to 2.1V	0 to 105	Modified Voltage & Temperature Specification
XPC750PRX366RB	366MHz	2.0 to 2.1V	0 to 105	Modified Voltage & Temperature Specification

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

1.2 General

This section summarizes changes to the features of the MPC750's implementation of the PowerPC architecture described in the *MPC750 Hardware Specifications*. **This revision is for samples only.**

- For errata, consult your local Motorola Sales Office.

1.4.1 DC Electrical Characteristics

Table 2 describes the DC operating conditions for the MPC750 part numbers described herein.

Table 2. Recommended Operating Conditions

Characteristic	Symbol	Value	Unit	Notes
Core supply voltage	Vdd	See Table A	V	
PLL supply voltage	AVdd	See Table A	V	
L2 DLL supply voltage	L2AVdd	See Table A	V	
60x bus supply voltage	OVdd	3.135 to 3.465	V	
L2 bus supply voltage	L2OVdd	2.5 to 3.465	V	
Input voltage	V _{in}	GND to OVdd	V	
Junction temperature	T _J	See Table A	°C	

Table 6 provides the power consumption for the MPC750.

Table 6. Power Consumption

At Recommended operating conditions (See Table 2).

	Processor (CPU) Frequency		Unit	Notes
	333 MHz	366 MHz		
Full-On Mode				
Typical	4.2	5.0	W	
Maximum	6.0	7.0	W	
Doze Mode				
Maximum	1.6	1.8	W	
Nap Mode				
Maximum	250	250	mW	
Sleep Mode				
Maximum	-	-	mW	1
Sleep Mode—PLL and DLL Disabled				
Typical	-	-	mW	1
Maximum	-	-	mW	1

Notes (in addition to those in the Hardware Specification):

1. Sleep mode power is not guaranteed.

1.4.2 AC Electrical Characteristics

This section in the MPC750 Hardware Specification provides the AC electrical characteristics for the MPC750.

1.4.2.1 Clock AC Specifications

Table 7 provides the additional clock AC timing specifications described in this Part Number Specification. Refer to the MPC750 Hardware Specification for the remaining frequencies.

Table 7. Clock AC Timing Specifications

At Recommended operating conditions (See Table 2)

Num	Characteristic	333 MHz		366 MHz		Unit	Notes
		Min	Max	Min	Max		
	Processor frequency	250	333	250	366	MHz	
	VCO frequency	500	666	500	733	MHz	

Table 7. Clock AC Timing Specifications (Continued)

At Recommended operating conditions (See Table 2)

Num	Characteristic	333 MHz		366 MHz		Unit	Notes
		Min	Max	Min	Max		
	SYSCLK frequency	25	100	25	100	MHz	1
1	SYSCLK cycle time	10	40	10	40	ns	
2, 3	SYSCLK rise and fall time	—	2	—	2	ns	2
4	SYSCLK duty cycle measured at 1.4V	40	60	40	60	%	3
	SYSCLK jitter	—	±150	—	±150	ps	4
	Internal PLL relock time	—	100	—	100	μs	5

Notes (in addition to those in the Hardware Specification):

None.

1.4.2.2 60x Bus Input AC Specifications

Table 8 in the MPC750 Hardware Specification provides the 60x bus input AC timing specifications for 200, 233, 266, and 300 MHz. The input AC specifications for the frequencies described in this Part Number Specification are identical to those in Table 8 of the MPC750 Hardware Specification for 300 MHz.

1.4.2.3 60x Bus Output AC Specifications

Table 9 in the MPC750 Hardware Specification provides the 60x bus output AC timing specifications for 200, 233, 266 and 300 MHz. The output AC specifications for the frequencies described in this Part Number Specification are identical to those in Table 9 of the MPC750 Hardware Specification for 300 MHz.

1.9 Ordering Information

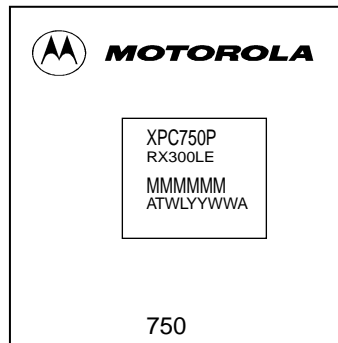
Table 14 provides the ordering information for the MPC750 part numbers described herein. Specifying a part number in Table 14 does not imply production status or availability. Consult your local Motorola sales office for availability.

Table 14. Ordering Information for the MPC750 Microprocessor

Package Type	Device Rev	Process	Mask Code	CPU Frequency (MHz)	Motorola Part Number
255 CBGA	1.1	HIP 3.4	Z81J99D	266MHz	XPC740PRX266LB
				300MHz	XPC740PRX300LB
				300MHz	XPC740PRX300RB
360 CBGA	1.1	HIP 3.4	Z81J99D	300MHz	XPC750PRX300LB
				300MHz	XPC750PRX300PB
				333MHz	XPC750PRX333PB
				366MHz	XPC750PRX366PB
				300MHz	XPC750PRX300RB
				333MHz	XPC750PRX333RB
				366MHz	XPC750PRX366RB

1.10 Part Marking

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



BGA

Notes:

MMMMMM is the 6-digit mask number


ATWLYYWWA is the traceability code

CCCCC is the country of assembly (this space is left blank if parts are assembled in the United States)

Figure A. Motorola Part Marking for BGA Devices

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