IBM 486 DX4 Supplement to The IBM 486 DX2 Common Socket Specification

Application Note

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Overview

This document is to be used as a complementary reference to the FaxBack document #40004 (IBM 486 DX2 Common Socket Specification for the 168-pin PGA Socket) and provides detailed information regarding the differences in pinouts for the following processors:

* IBM 486 DX4 (IBM 486 DX2 Pinout)
* IBM 486 DX4 (Intel® 486DX4-like Pinout)
* IBM 486 DX2
* Intel 486DX2
* Intel Write-back enhanced 486DX2
* Intel 486DX4
* AMD® 486DX2
* AMD 486DX4 (with Write-back)
* IBM 5x86C

PGA Pinout Differences

Table 1. shows those pins that differ among the various processors' PGA packages. Based on this table, a designer should be able to determine how to properly route those signals that are common to all processors to produce a common-socketed planar/motherboard for PGA packaged parts.

TABLE 1. PGA Pinout Differences[1]

	① IBM 486DX2	② Intel 486DX2	③ AMD 486DX2 with Write-Back	② Intel Write-Back Enhanced 486DX2	④ IBM 486DX4 IBM 486DX2 Pinout	④ IBM 486DX4 Intel 486DX4-like Pinout	② Intel 486DX4	③ AMD 486DX4 with Write-Back
PIN								
A3	NC	TCK	TCK	TCK	NC	NC	TCK	TCK
A10	SUSPA#	INC	INV	INV	SUSPA#	INV	INC	INV
A12	SMI#	NC	HITM#	HITM#	SMI#	HITM#	INC	HITM#
A13	RPLSET1	INC	INC	INC	RPLSET1	SUSPA#	INC	INC
A14	NC	TDI	TDI	TDI	NC	NC	TDI	TDI
B10	NC	SMI#	SMI#	SMI#	NC	SMI#	SMI#	SMI#
B12	NC	INC	CACHE#	CACHE#	NC	RPLSET1	INC	CACHE#
B13	WM_RST	INC	WB/WT#	WB/WT#	WM_RST	RPLVAL#	INC	WB/WT#
B14	NC	TMS	TMS	TMS	NC	RPLSET0	TMS	TMS
B16	NC	TDO	TDO	TDO	NC	NC	TDO	TDO
C10	SMADS#	SRESET	SRESET	SRESET	SMADS#	WM_RST	SRESET	SRESET
C12	RPLSET0	SMIACT#	SMIACT#	SMIACT#	RPLSET0	SMADS#	SMIACT#	SMIACT#
C13	RPLVAL#	NC	INC	NC	RPLVAL#	NC	NC	INC
G15	SUSP#	STPCLK#	STPCLK#	STPCLK#	SUSP#	SUSP#	STPCLK#	STPCLK#
J1	NC	Vcc	INC	Vcc	NC	NC	Vcc5	INC
R17	HITM#	INC	CLKMUL	INC	HITM#	CLKMUL	CLKMUL	CLKMUL
S4	INVAL	NC	VOLTDET	NC	INVAL	VOLTDET	VOLTDET	VOLTDET

QFP Pinout Differences

Table 2. lists those pins which differ among the various processors' QFP packages. Based on this table, a designer should be able to determine how to properly route those signals that are common to all processors to produce a motherboard which can accommodate several QFP parts.

[1] Numbers in column heading designate entries in the References Section at the end of this document.

TABLE 2. QFP Pinout Differences

	① IBM 486DX2	② Intel 486DX2	③ AMD 486DX2 with Write-Back	② Intel Write-Back Enhanced 486DX2	④ IBM 486DX4	② Intel 486DX4	③ AMD 486DX4 with Write-Back
PIN							
3	NC	Vcc*	INC	Vcc	NC	Vcc5	INC
11	NC	NC	CLKMUL	INC	CLKMUL	CLKMUL	CLKMUL
18	NC	TCK	TCK	TCK	NC	TCK	TCK
58	WM_RST	SRESET	SRESET	SRESET	WM_RST	SRESET	SRESET
59	SMADS#	SMIACT#	SMIACT#	SMIACT#	SMADS#	SMIACT#	SMIACT#
63	RPLSET0	NC	HITM#	HITM#	RPLSET0	NC	HITM#
64	RPLSET1	NC	WB/WT#	WB/WT#	RPLSET1	NC	WB/WT#
67	INVAL	NC	INC	NC	INVAL	NC	INC
68	NC	TDO	TDO	TDO	NC	TDO	TDO
70	RPLVAL#	NC	CACHE#	CACHE#	RPLVAL#	NC	CACHE#
71	SUSPA#	NC	INV	INV	SUSPA#	NC	INV
73	SUSP#	STPCLK#	STPCLK#	STPCLK#	SUSP#	STPCLK#	STPCLK#
96	HITM#	NC	INC	NC	HITM#	NC	NC
167	NC	TMS	TMS	TMS	NC	TMS	TMS
168	NC	TDI	TDI	TDI	NC	TDI	TDI

References:

1. IBM 486 DX2 Addendum to the IBM Blue Lightning 486 DX2 Databook, August 11, 1995

2. Intel 486 Microprocessor Family Databook, 1994

3. Enhanced Am486™ Microprocessor Family Datasheet, May, 1995

4. IBM 486 DX4 Addendum to the IBM Blue Lightning 486 DX2 Databook, September 12, 1995

5. IBM Blue Lightning 486 DX2 Databook, 1994

6. IBM Blue Lightning Microprocessor Datasheet, February 7, 1994

7. Pentium™ Family User's Manual, 1994

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