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Differences Between the HC08BD24 and HC908BD48

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Introduction

This document describes the differences between the MC68HC08BD24 (HC08BD24) and the MC68HC908BD48 (HC908BD48), and the requirements/considerations for converting code from the HC08BD24 to the HC908BD48.

Differences Between the Devices

The HC908BD48 is the FLASH version of the HC08BD24. In addition to all modules in the HC08BD24, the HC908BD48 has a universal serial bus module (USB) and a multi-master IIC interface module (MMIIC). Table 1 shows the differences between the two parts.

Table 1. Differences Between the Devices

	MC68HC08BD24	MC68HC908BD48
RAM	512 bytes RAM ($80 – $27F)	1024 bytes RAM ($80 – $47F)
User memory	24,576 bytes ROM ($9C00 – $FBFF) 512 bytes ROM ($FC00 – $FDFF)	48,128 bytes FLASH ($4000 – $FBFF)
User vectors	26 bytes ROM ($FFE6 – $FFFF)	26 bytes FLASH ($FFE6 – $FFFF)
PTD0 and PTD1 pins	PTD0 pin – Port D bit 0 3.3 V I/O pin PTD1 pin – Port D bit 1 3.3 V I/O pin	PTD0 pin – Port D bit 0 3.3 V I/O pin or USB data D+ pin PTD1 pin – Port D bit 1 3.3 V I/O pin or USB data D– pin

Table 1. Differences Between the Devices (Continued)

	MC68HC08BD24	MC68HC908BD48
PTD5 and PTD6 pins	PTD5 pin – Port D bit 0 I/O pin PTD6 pin – Port D bit 1 I/O pin	PTD5 pin – Port D bit 0 I/O pin or MMIIC clock pin PTD6 pin – Port D bit 1 I/O pin or MMIIC data pin
USB	Not supported:	Supported
Registers from $0029 through $003F	Not used: Locations are reserved	USB related registers: $0029 – UADR, $002A – UINTR $002B – UCR0, $002C – USR $002D – UCR2, $002E – UIR1 $002F – UCR1, $0030 – UD0R0 $0031 – UD0R1, $0032 – UD0R2 $0033 – UD0R3, $0034 – UD0R4 $0035 – UD0R5, $0036 – UD0R6 $0037 – UD0R7, $0038 – UD1R0 $0039 – UD1R1, $003A – UD1R2 $003B – UD1R3, $003C – UD1R4 $003D – UD1R5, $003E – UD1R6 $003F – UD1R7
Bit 0 and bit 1 at $0003	Bit 0 – Port D Data bit 0 Bit 1 – Port D Data bit 1	Bit 0 – Port D data bit 0 or USB I/O D+ Bit 1 – Port D data bit 1 or USB I/O D–
Bit 0 and bit 1 at $0049	Not used: Bit is reserved	USB related bits: Bit 0 – USBD+E Bit 1 – USBD–E
Vector at $FFF8 and $FFF9	Not used: Locations are reserved	USB vector
MMIIC	Not supported	Supported
Bit 5 and bit 6 at $0003	Bit 5 – Port D Data bit 5 Bit 6 – Port D Data bit 6	Bit 5 – Port D data bit 5 or MMIIC data Bit 6 – Port D data bit 6 or MMIIC clock
Registers from $004A through $004F	Not used: Locations are reserved	MMIIC related registers: $004A – MIMCR, $004B – MIMADR $004C – MMCR, $004D – MMSR $004E – MMDTR, $004F – MMDRR
Bit 5 and bit 6 At $0049	Not used: Bit is reserved	MMIIC related bits: Bit 5 – IICSLE Bit 6 – IICDATE

Table 1. Differences Between the Devices (Continued)

	MC68HC08BD24	MC68HC908BD48
Vector at $FFEA and $FFEB	Not used: Locations are reserved	MMIIC vector
Registers at $FE07 and $FE08	Not used: Locations are reserved	FLASH related registers: $FE07 – FLCR $FE08 – FLBPR
Monitor ROM	Used for testing only	Used for testing and FLASH programming/erasing
Packages	42-pin SDIP 44-pin QFP	28-pin PDIP 42-pin SDIP 44-pin QFP

Code Conversion: HC08BD24 to HC908BD48

Due to the aforementioned differences, a few details must be considered in the user's software when the HC08BD24 is replaced with the HC908BD48.

As **Table 1** shows, the HC908BD48 user memory size is much bigger than in the HC08BD24. However, the HC908BD48 does not have FLASH memory at locations from $FC00 through $FDFF. For the user's code to work properly using the HC908BD48, make sure that the user's code resides within FLASH memory.

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