

Using the M9328MX21ADS for i.MX21S Development

MC9328MX21S

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1 Abstract

The MC9328MX21S (i.MX21S) is backward-compatible to the MC9328M21 (i.MX21). Therefore, the i.MX21 ADS (Application Development System) can be used for i.MX21S hardware and software development.

This paper is a guideline for how to properly use the i.MX21 ADS for i.MX21S development purposes.

2 Introduction

Although both the i.MX21 and i.MX21S use an ARM926EJ-S™ core, to reduce cost, certain circuit blocks are not available on the i.MX21S. These include the following.

- Universal Asynchronous Receiver/Transmitter 2 (UART2)
- Configurable Serial Peripheral Interface 3 (CSPI3)
- Camera Interface or CMOS Sensor Interface (CSI)
- Enhanced Multimedia Accelerator (eMMA)
- Universal Serial Bus host 2 (USB Host 2)
- Bus Master Interface (BMI)

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3 Comparison of the Two Processors

Table 1 lists the features of the two processors. The differences are highlighted. When using the ADS or other MX21 documentation, simply ignore references to those modules which are not contained in the i.MX21S device.

Table 1. Comparison of the Processors

Attribute	i.MX21	i.MX21S
CPU Speed	266 MHz	266 MHz
System Speed	133 MHz	133 MHz
I Cache / D Cache	16 KB / 16 KB	16 KB / 16 KB
Package	289 MAP BGA	289 MAP BGA
UART	4	3
General-Purpose Timer	2	2
Watchdog Timer	1	1
RTC	1	1
PWM	1	1
SSI / I ² S	1	1
I ² C	1	1
CSI	1	0
USB	3 (OTG, Host 1 and 2)	2 (OTG, Host 1)
MMC/SDHC	1	1
MSHC	1	1
PCMCIA	External logic required	External logic required
CSPI	3	2
IrDA (Infrared)	v1.0 via UART	v1.0 via UART
LCD Controllers	Smart, Dumb	Smart, Dumb
BMI	1	0
eMMA	1	0
SDRAM Support	Yes	Yes
Flash Support	NAND, NOR	NAND, NOR
Flash boot	Yes	Yes
JTAG	Yes	Yes

4 Kit Contents

The M9328MX21ADS kit includes a populated circuit board, cables, power supply, styluses, earphones, and software. An LCD board is included that attaches to the main board with a ribbon cable.

A CMOS sensor camera is included but is not applicable to i.MX21S evaluation because the CMOS Sensor Interface is not available on the i.MX21S processor.

5 References

The following documents provide a description of the i.MX21S processor and are necessary to design properly with the device. The following documents are helpful when used in conjunction with this application note.

MC9328MX21S Data Sheet (order number MC9328MX21S)

MC9328MX21 Reference Manual (order number MC9328MX21RM)

IMX21ADS_SCHEMATICS

IMX21ADS_BOM, Bill of material for the M9328MX21ADS

M9328MX21ADS Application Development System

The Freescale documents, including errata, are available on the Freescale Semiconductor Web site at <http://www.freescale.com/imx>. These documents may be downloaded directly from the Freescale Web site, or printed versions may be ordered.

6 Revision History

Rev. 1 changes the Reference document from MC9328MX21SRM to MC9328MX21RM.

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