AM/DM37x Multimedia Device
Silicon Revision 1.x
Texas Instruments OMAP™ Family of Products

Technical Reference Manual
Delta between version Q and version R

Literature Number: SPRUGW9Q
September 12

WARNING: EXPORT NOTICE

Recipient agrees to not knowingly export or re-export, directly or indirectly, any product or technical data (as defined by the U.S., EU and other Export Administration Regulations) including software, or any controlled product restricted by other applicable national regulations, received from Disclosing party under this Agreement, or any direct product of such technology, to any destination to which such export or re-export is restricted or prohibited by U.S. or other applicable laws, without obtaining prior authorization from U.S. Department of Commerce and other competent Government authorities to the extent required by those laws. This provision shall survive termination or expiration of this Agreement.

According to our best knowledge of the state and end-use of this product or technology, and in compliance with the export control regulations of dual-use goods in force in the origin and exporting countries, this technology is classified as follows:

−US ECCN: 3E991
−EU ECCN: EAR99

and may require export or re-export license for shipping it in compliance with the applicable regulations of certain countries.

Table of Contents

AM/DM37x ES1.x TRM Delta introduction

This document contains all the differences between AM/DM37x_ES1.x_TRM_vQ (literature number SPRUGN4Q) and AM/DM37x_ES1.x_TRM_vR (literature number SPRUGN4R).

Reading rules:

~~Strike through~~ = removed.
Highlighted in yellow = added or updated

Tables and Figures refer to the previous TRM version. In the new TRM version; their numbering may change due to additional or removal of Tables or Figures.

Preface

No difference.

Chapter 1: Introduction

No difference.

Chapter 2: Memory Mapping

No difference.

Chapter 3: Power, Reset, and Clock Management

No difference.

Chapter 4: MPU Subsystem

No difference.

Chapter 5: IVA2.2 Subsystem

No difference.

Chapter 6: Camera Image Signal Processor

No difference.

Chapter 7: Display Subsystem

7.1 ProDB00114644: HDMI support through DSI interface

DESCRIPTION

The maximum resolution supported on DSI video port need to be aligned with actual implementation.

CORRECTION

The following modifications are applied:

7.1 Display Subsystem Overview

- MIPI DSI
  - Transfer pixels and data received on the video port or L4 interconnect to the display through the DSI DSI_PHY
  - The maximum resolution supported on the video port is ~~XGA~~ SVGA at 60 fps with 24-bit pixels (maximum pixel clock of ~~67~~ 48 MHz) for low voltage, and WXGA at 60 fps with 24-bit pixels (maximum pixel clock of 86.5 MHz) for nominal voltage
  - Supports video mode and command mode

Chapter 8: 2D/3D Graphics Accelerator

No difference.

Chapter 9: Interconnect

No difference.

Chapter 10: Memory Subsystem

No difference.

Chapter 11: SDMA

No difference.

Chapter 12: Interrupt Controller

No difference.

Chapter 13: System Control Module

No difference.

Chapter 14: Interprocessor Communication

No difference.

Chapter 15: Memory Management Units

No difference.

Chapter 16: Timers

No difference.

Chapter 17: I^2C

No difference.

Chapter 18: HDQ/1-Wire

No difference.

Chapter 19: UART/IrDA/CIR

19.1 ProDB00121218: THR_REG register is limited to 8-bit data access

DESCRIPTION

THR_REG register is limited to 8-bit data access.

CORRECTION

A note that THR_REG register is limited to 8-bit data access is added to Table 19-45. THR_REG register and typo update.

19.6.1 UART/IrDA/CIR Instance Summary

CAUTION

~~The UART_THR register is limited to 8-bit data accesses; 16- and 32-bit data accesses are not allowed and can corrupt the register content.~~

Only 8-bit and 16-bit accesses are allowed for the THR_REG register. Performing a 32-bit access can result in a data abort.

Table 19-45. THR_REG

Address Offset	0x000
Physical Address	See Table 19-39 to Table 19-40
Description	Transmit holding register The transmitter section consists of the transmit holding register (THR_REG) and the transmit shift register. The transmit holding register is a 64-byte FIFO. The MPU writes data to the THR_REG. The data is placed in the transmit shift register where it is shifted out serially on the TX output. If the FIFO is disabled, location zero of the FIFO is used to store the data. Note: Only 8-bit and 16-bit accesses are allowed for the THR_REG register. Performing a 32-bit access can result in a data abort.
Type	W

Chapter 20: Multichannel SPI

No difference.

Chapter 21: Multichannel Buffered Serial Port

No difference.

Chapter 22: High-Speed USB Host Subsystem and High-Speed USB OTG Controller

No difference.

Chapter 23: Memory Stick PRO Host Controller

No difference.

Chapter 24: MMC/SD/SDIO Card Interface

No difference.

Chapter 25: General-Purpose Interface

No difference.

Chapter 26: Initialization

No difference.

Chapter 27: Debug and Emulation

No difference.

A: Glossary

No difference.

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

TI products are not authorized for use in safety-critical applications (such as life support) where a failure of the TI product would reasonably be expected to cause severe personal injury or death, unless officers of the parties have executed an agreement specifically governing such use. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of TI products in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by TI. Further, Buyers must fully indemnify TI and its representatives against any damages arising out of the use of TI products in such safety-critical applications.

TI products are neither designed nor intended for use in military/aerospace applications or environments unless the TI products are specifically designated by TI as military-grade or "enhanced plastic." Only products designated by TI as military-grade meet military specifications. Buyers acknowledge and agree that any such use of TI products which TI has not designated as military-grade is solely at the Buyer's risk, and that they are solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI products are neither designed nor intended for use in automotive applications or environments unless the specific TI products are designated by TI as compliant with ISO/TS 16949 requirements. Buyers acknowledge and agree that, if they use any non-designated products in automotive applications, TI will not be responsible for any failure to meet such requirements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

Products		**Applications**	
Audio	www.ti.com/audio	Communications & Telecom	www.ti.com/communications
Amplifiers	amplifier.ti.com	Computers & Peripherals	www.ti.com/computers
Data Converters	dataconverter.ti.com	Consumer Electronics	www.ti.com/consumer-apps
DLP® Products	www.dlp.com	Energy and Lighting	www.ti.com/energyapps
DSP	dsp.ti.com	Industrial	www.ti.com/industrial
Clocks and Timers	www.ti.com/clocks	Medical	www.ti.com/medical
Interface	interface.ti.com	Security	www.ti.com/security
Logic	logic.ti.com	Space, Avionics & Defense	www.ti.com/space-avionics-defense
Power Mgmt	power.ti.com	Transportation & Automotive	www.ti.com/automotive
Microcontrollers	microcontroller.ti.com	Video & Imaging	www.ti.com/video
RFID	www.ti-rfid.com	Wireless	www.ti.com/wireless-apps
RF/IF and ZigBee® Solutions	www.ti.com/lprf		

TI E2E Community Home Page e2e.ti.com

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, enhancements, improvements and other changes to its semiconductor products and services per JESD46, latest issue, and to discontinue any product or service per JESD48, latest issue. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All semiconductor products (also referred to herein as “components”) are sold subject to TI’s terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its components to the specifications applicable at the time of sale, in accordance with the warranty in TI’s terms and conditions of sale of semiconductor products. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by applicable law, testing of all parameters of each component is not necessarily performed.

TI assumes no liability for applications assistance or the design of Buyers’ products. Buyers are responsible for their products and applications using TI components. To minimize the risks associated with Buyers’ products and applications, Buyers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI components or services are used. Information published by TI regarding third-party products or services does not constitute a license to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of significant portions of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI components or services with statements different from or beyond the parameters stated by TI for that component or service voids all express and any implied warranties for the associated TI component or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

Buyer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of TI components in its applications, notwithstanding any applications-related information or support that may be provided by TI. Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards which anticipate dangerous consequences of failures, monitor failures and their consequences, lessen the likelihood of failures that might cause harm and take appropriate remedial actions. Buyer will fully indemnify TI and its representatives against any damages arising out of the use of any TI components in safety-critical applications.

In some cases, TI components may be promoted specifically to facilitate safety-related applications. With such components, TI’s goal is to help enable customers to design and create their own end-product solutions that meet applicable functional safety standards and requirements. Nonetheless, such components are subject to these terms.

No TI components are authorized for use in FDA Class III (or similar life-critical medical equipment) unless authorized officers of the parties have executed a special agreement specifically governing such use.

Only those TI components which TI has specifically designated as military grade or “enhanced plastic” are designed and intended for use in military/aerospace applications or environments. Buyer acknowledges and agrees that any military or aerospace use of TI components which have ***not*** been so designated is solely at the Buyer's risk, and that Buyer is solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI has specifically designated certain components as meeting ISO/TS16949 requirements, mainly for automotive use. In any case of use of non-designated products, TI will not be responsible for any failure to meet ISO/TS16949.

Products		**Applications**	
Audio	www.ti.com/audio	Automotive and Transportation	www.ti.com/automotive
Amplifiers	amplifier.ti.com	Communications and Telecom	www.ti.com/communications
Data Converters	dataconverter.ti.com	Computers and Peripherals	www.ti.com/computers
DLP® Products	www.dlp.com	Consumer Electronics	www.ti.com/consumer-apps
DSP	dsp.ti.com	Energy and Lighting	www.ti.com/energy
Clocks and Timers	www.ti.com/clocks	Industrial	www.ti.com/industrial
Interface	interface.ti.com	Medical	www.ti.com/medical
Logic	logic.ti.com	Security	www.ti.com/security
Power Mgmt	power.ti.com	Space, Avionics and Defense	www.ti.com/space-avionics-defense
Microcontrollers	microcontroller.ti.com	Video and Imaging	www.ti.com/video
RFID	www.ti-rfid.com		
OMAP Applications Processors	www.ti.com/omap	**TI E2E Community**	e2e.ti.com
Wireless Connectivity	www.ti.com/wirelessconnectivity		

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265