TMS320C6000 DSP Peripherals Overview

Reference Guide

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Trademarks

TMS320C6000, C6000, VelociTI, DaVinci, TMS320DM64x, TMS320DM643x, TMS320DM644x, TMS320DM646x, TMS320C64x, TMS320C645x, TMS320C647x, TMS320C62x, TMS320C642x, TMS320C67x, TMS320C672x, OMAP are trademarks of Texas Instruments.

TMS320C6000 DSP Peripherals Overview

This document provides an overview of the peripherals available on the TMS320C6000™ family of digital signal processors (DSPs) and provides a link to the associated technical documentation.

The current documentation that describes the C6000™ DSP, related peripherals, and other technical collateral, is available in the C6000 DSP product folder at: www.ti.com/c6000.

1 Overview

The C6000 platform of devices consists of the first off-the-shelf digital signal processors (DSPs) that use advanced very long instruction word (VLIW) to achieve high performance through increased instruction-level parallelism. The VelociTI™ VLIW architecture uses multiple execution units operating in parallel to execute multiple instructions during a single clock cycle. Parallelism is the key to extremely high performance, taking these DSPs well beyond the performance capabilities of traditional designs.

The user-accessible peripherals available on the C6000 devices may be configured using a set of memory-mapped control registers.

2 DaVinci Digital Media Processors

DaVinci™ technology is a DSP-based solution tailored for digital video applications that provides video equipment manufacturers with integrated processors, software and tools to simplify the design process and accelerate innovation. Designed especially for video encode and decode applications.

2.1 TMS320DM64x DSP Peripherals

Peripherals available on the TMS320DM64x™ Digital Signal Processors (DSP) and their associated literature number are listed in Table 1.

Table 1. TMS320DM64x DSP Peripherals Documentation

			DM64x			
Peripheral/Module	**Acronym**	**Lit #**	**0**	**1**	**2**	**3**
Enhanced Direct Memory Access Controller	EDMA	SPRU234	√	√	√	√
Ethernet Media Access Controller/Management Data Input/Output Module	EMAC/MDIO	SPRU628	√	√	√	√
External Memory Interface	EMIF	SPRU266	√	√	√	√
General-Purpose Input/Output	GPIO	SPRU584	√	√	√	√
Host Port Interface	HPI	SPRU578	—	√	√	√
Inter-Integrated Circuit	I2C	SPRU175	√	√	√	√
Multichannel Audio Serial Port	McASP	SPRU041	√	√	√	√
Multichannel Buffered Serial Port	McBSP	SPRU580	√	√	√	√
Peripheral Component Interconnect	PCI	SPRU581	—	—	√	—
Power-Down Logic and Modes	—	SPRU728	√	√	√	√
Timer, 32-bit	Timer	SPRU582	√	√	√	√
Two-Level Internal Memory	Cache	SPRU610	√	√	√	√
Video Port/VCXO Interpolated Control Port	Video Port	SPRU629	√	√	√	√

2.2 TMS320DM64x DMP Peripherals

Peripherals available on the TMS320DM64x™ Digital Media Processors (DMP) and their associated literature number are listed in Table 2.

Table 2. TMS320DM64x DMP Peripherals Documentation

			DM64x	
Peripheral/Module	**Acronym**	**Lit #**	**7**	**8**
3-Port Gigabit Ethernet Switch	3PSW	SPRUF57	√	√
DDR2 Memory Controller	DDR2	SPRUEK5	√	√
DSP Megamodule—Internal Direct Memory Access Controller	IDMA	SPRU871	√	√
DSP Megamodule—Interrupt Controller	INTC	SPRU871	√	√
DSP Megamodule—Power-Down Controller	PDC	SPRU871	√	√
DSP Subsystem—Phase-Locked Loop Controller	PLLC	SPRUEU6	√	√
DSP Subsystem—Power and Sleep Controller	PSC	SPRUEU6	√	√
Enhanced Direct Memory Access Controller	EDMA	SPRUEL2	√	√
External Memory Interface	EMIF	SPRUEK6	√	√
General-Purpose Input/Output	GPIO	SPRUEK7	√	√
Host Port Interface	HPI	SPRUEL5	√	√
Inter-Integrated Circuit	I2C	SPRUEK8	√	√
Multichannel Audio Serial Port	McASP	SPRUEL1	√	√
Peripheral Component Interconnect	PCI	SPRUEL4	√	√
Serial Peripheral Interface	SPI	SPRUEM2	√	√
Timer, 32-bit	Timer	SPRUEL0	√	√
Two-Level Internal Memory	Cache	SPRU862	√	√
Universal Asynchronous Receiver/Transmitter	UART	SPRUEL8	√	√
Video Port/VCXO Interpolated Control Port	Video Port	SPRUEM1	√	√
VLYNQ Port	VLYNQ	SPRUEL9	√	√

2.3 TMS320DM643x DMP Peripherals

Peripherals available on the TMS320DM643x™ Digital Media Processors (DMP) and their associated literature number are listed in Table 3.

Table 3. TMS320DM643x DMP Peripherals Documentation

			DM64x			
Peripheral/Module	**Acronym**	**Lit #**	**31**	**33**	**35**	**37**
Asynchronous External Memory Interface	EMIF	SPRU984	√	√	√	√
DDR2 Memory Controller	DDR2	SPRU986	√	√	√	√
DSP Megamodule—Internal Direct Memory Access Controller	IDMA	SPRU871	√	√	√	√
DSP Megamodule—Interrupt Controller	INTC	SPRU871	√	√	√	√
DSP Megamodule—Power-Down Controller	PDC	SPRU871	√	√	√	√
DSP Subsystem—Phase-Locked Loop Controller	PLLC	SPRU978	√	√	√	√
DSP Subsystem—Power and Sleep Controller	PSC	SPRU978	√	√	√	√
Enhanced Direct Memory Access Controller	EDMA	SPRU987	√	√	√	√
Ethernet Media Access Controller/ Management Data Input/Output Module	EMAC/MDIO	SPRU941	√	√	√	√
General-Purpose Input/Output	GPIO	SPRU988	√	√	√	√
High-End CAN Controller	HECC	SPRU981	√	—	√	√
Host Port Interface	HPI	SPRU998	—	√	√	√
Inter-Integrated Circuit Module	I2C	SPRU991	√	√	√	√
Multichannel Audio Serial Port	McASP	SPRU980	√	√	√	√
Multichannel Buffered Serial Port	McBSP	SPRU943	√	√	√	√
Peripheral Component Interconnect	PCI	SPRU985	—	√	—	√
Pulse-Width Modulator	PWM	SPRU995	√	√	√	√
Timer, 64-bit	Timer	SPRU989	√	√	√	√
Two-Level Internal Memory	Cache	SPRU862	√	√	√	√
Universal Asynchronous Receiver/Transmitter	UART	SPRU997	√	√	√	√
VLYNQ Port	VLYNQ	SPRU938	—	√	√	√
Video Processing Back End	VPBE	SPRU952	—	√	—	√
Video Processing Front End	VPFE	SPRU977	√	—	√	√

2.4 TMS320DM644x DMSoC Peripherals

Peripherals available on the TMS320DM644x™ Digital Media System-on-Chip (DMSoC) and their associated literature number are listed in Table 4.

Table 4. TMS320DM644x DMSoC Peripherals Documentation

			DM64x		
Peripheral/Module	**Acronym**	**Lit #**	**41**	**43**	**46**
ARM Subsystem—Interrupt Controller	AINTC	SPRUE14	√	√	√
ARM Subsystem—Phase-Locked Loop Controller	PLLC	SPRUE14	√	√	√
ARM Subsystem—Power and Sleep Controller	PSC	SPRUE14	√	√	√
Asynchronous External Memory Interface	EMIF	SPRUE20	√	√	√
ATA Controller	ATA	SPRUE21	√	√	√
Audio Serial Port	ASP	SPRUE29	√	√	√
DDR2 Memory Controller	DDR2	SPRUE22	√	√	√
DSP Megamodule—Internal Direct Memory Access Controller	IDMA	SPRU871	√	√	√
DSP Megamodule—Power-Down Controller	PDC	SPRU871	√	√	√
Enhanced Direct Memory Access Controller	EDMA	SPRUE23	√	√	√
Ethernet Media Access Controller/Management Data Input/Output Module	EMAC/MDIO	SPRUE24	√	√	√
General-Purpose Input/Output	GPIO	SPRUE25	√	√	√
Host Port Interface	HPI	SPRUE97	√	√	√
Inter-Integrated Circuit Module	I2C	SPRUE27	√	√	√
Multimedia Card/Secure Digital Card Controller	MMC/SD	SPRUE30	√	√	√
Pulse-Width Modulator	PWM	SPRUE31	√	√	√
Serial Peripheral Interface	SPI	SPRUE32	√	√	√
Timer, 64-bit	Timer	SPRUE26	√	√	√
Two-Level Internal Memory	Cache	SPRU862	√	√	√
Universal Asynchronous Receiver/Transmitter	UART	SPRUE33	√	√	√
Universal Serial Bus	USB	SPRUE35	√	√	√
Video Processing Back End	VPBE	SPRUE37	√	√	√
Video Processing Front End	VPFE	SPRUE38	√	√	√
VLYNQ Port	VLYNQ	SPRUE36	√	√	√

2.5 TMS320DM646x DMSoC Peripherals

Peripherals available on the TMS320DM646x™ Digital Media System-on-Chip (DMSoC) and their associated literature number are listed in Table 5.

Table 5. TMS320DM646x DMSoC Peripherals Documentation

Peripheral/Module	Acronym	Lit #
Asynchronous External Memory Interface	EMIF	SPRUEQ7
ATA Controller	ATA	SPRUEQ3
Clock Reference Generator	CRGEN	SPRUEQ1
DDR2 Memory Controller	DDR2	SPRUEQ4
Enhanced Direct Memory Access Controller	EDMA	SPRUEQ5
Ethernet Media Access Controller/Management Data Input/Output Module	EMAC/MDIO	SPRUEQ6
General-Purpose Input/Output	GPIO	SPRUEQ8
Host Port Interface	HPI	SPRUES1
Inter-Integrated Circuit Module	I2C	SPRUER0
Internal Direct Memory Access Controller	IDMA	SPRU871
Interrupt Controller	INTC	SPRUEP9
Multichannel Audio Serial Port	McASP	SPRUER1
Peripheral Component Interconnect	PCI	SPRUER2
Phase-Locked Loop Controller	PLLC	SPRUEP9
Power-Down Controller	PDC	SPRU871
Power and Sleep Controller	PSC	SPRUEP9
Pulse-Width Modulator	PWM	SPRUER3
Serial Peripheral Interface	SPI	SPRUER4
64-Bit Timer	Timer	SPRUER5
Transport Stream Interface	TSIF	SPRUEQ2
Universal Asynchronous Receiver/Transmitter	UART	SPRUER6
Universal Serial Bus Controller	USB	SPRUER7
Video Data Conversion Engine	VDCE	SPRUEQ9
Video Port Interface	VPIF	SPRUER9
VLYNQ Port	VLYNQ	SPRUER8

2.6 TMS320DM355 DMSoC Peripherals

Peripherals available on the TMS320DM355 Digital Media System-on-Chip (DMSoC) and their associated literature number are listed in Table 6.

Table 6. TMS320DM355 DMSoC Peripherals Documentation

Peripheral/Module	Acronym	Lit #
Asynchronous External Memory Interface	EMIF	SPRUED1
Audio Serial Port	ASP	SPRUED3
DDR2 Memory Controller	DDR2	SPRUEH7
Enhanced Direct Memory Access Controller	EDMA	SPRUEE4
General-Purpose Input/Output	GPIO	SPRUEE6
Inter-Integrated Circuit Module	I2C	SPRUEE0
Multimedia Card/Secure Digital Card Controller	MMC/SD	SPRUEE2
Pulse-Width Modulator	PWM	SPRUEE7
Serial Peripheral Interface	SPI	SPRUED4
Timer, 64-Bit	Timer	SPRUEE5
Universal Asynchronous Receiver/Transmitter	UART	SPRUED9
Universal Serial Bus	USB	SPRUED2
Video Processing Back End	VPBE	SPRUF72
Video Processing Front End	VPFE	SPRUF71
Real Time Out Controller	RTO	SPRUF74

3 High-Performance TMS320C6000 DSPs

The high-performance DSPs offer the industry's highest performance fixed-point DSPs ideal for imaging, broadband infrastructure and performance audio applications.

3.1 TMS320C64x DSP Peripherals

Peripherals available on the TMS320C64x™ Digital Signal Processors (DSP) and their associated literature number are listed in Table 7.

Table 7. TMS320C64x DSP Peripherals Documentation

			C64x		
Peripheral/Module	**Acronym**	**Lit #**	**14**	**15**	**16**
Enhanced Direct Memory Access Controller	EDMA	SPRU234	√	√	√
External Memory Interface	EMIF	SPRU266	√	√	√
General-Purpose Input/Output	GPIO	SPRU584	√	√	√
Host Port Interface	HPI	SPRU578	√	√	√
Multichannel Buffered Serial Port	McBSP	SPRU580	√	√	√
Peripheral Component Interconnect	PCI	SPRU581	—	√	√
Power-Down Logic and Modes	—	SPRU728	√	√	√
Timer, 32-bit	Timer	SPRU582	√	√	√
Turbo Decoder Coprocessor	TCP	SPRU534	—	—	√
Two-Level Internal Memory	Cache	SPRU610	√	√	√
Universal Test and Operations Interface for ATM	UTOPIA	SPRU583	—	√	√
Viterbi Decoder Coprocessor	VCP	SPRU533	—	—	√

3.2 TMS320C645x DSP Peripherals

Peripherals available on the TMS320C645x™ Digital Signal Processors (DSP) and their associated literature numbers are listed in Table 8.

Table 8. TMS320C645x DSP Peripherals Documentation

			C64x	
Peripheral/Module	**Acronym**	**Lit #**	**54**	**55**
Bootloader	—	SPRUEC6	√	√
DDR2 Memory Controller	DDR2	SPRU970	√	√
Enhanced Direct Memory Access (EDMA3) Controller	EDMA	SPRU966	√	√
Ethernet Media Access Controller/Management Data Input/Output Module	EMAC/MDIO	SPRU975	√	√
External Memory Interface	EMIF	SPRU971	√	√
General-Purpose Input/Output	GPIO	SPRU724	√	√
Host Port Interface	HPI	SPRU969	√	√
Inter-Integrated Circuit Module	I2C	SPRU974	√	√
Multichannel Buffered Serial Port	McBSP	SPRU580	√	√
Peripheral Component Interconnect	PCI	SPRUE60	√	√
Serial Rapid IO	SRIO	SPRU976	—	√
Software-Programmable Phase-Locked Loop Controller	PLL	SPRUE56	√	√
Timer, 64-bit	Timer	SPRU968	√	√
Turbo Decoder Coprocessor 2	TCP2	SPRU973	—	√
Two-Level Internal Memory	Cache	SPRU862	√	√
Universal Test & Operations PHY Interface for ATM 2	UTOPIA2	SPRUE48	—	√
Viterbi Decoder Coprocessor 2	VCP2	SPRU972	—	√

3.3 TMS320C647x DSP Peripherals

Peripherals available on the TMS320C647x™ Digital Signal Processors (DSP) and their associated literature numbers are listed in Table 9.

Table 9. TMS320C647x DSP Peripherals Documentation

Peripheral/Module	Acronym	Lit #
Antenna Interface	AIF	SPRUG12
Bootloader	—	SPRUG24
Chip Interrupt Controller	CIC	SPRUFK6
DDR2 Memory Controller	DDR2	SPRUG19
Enhanced Direct Memory Access Controller	EDMA3	SPRUG11
Ethernet Media Access Controller/Management Data Input/Output Module	EMAC/MDIO	SPRUG08
Frame Synchronization Module	FSYNC	SPRUG13
General-Purpose Input/Output	GPIO	SPRUG16
Inter-Integrated Circuit Module	I2C	SPRUG22
Multichannel Buffered Serial Port	McBSP	SPRUG17
Power/Sleep Controller	PSC	SPRUG10
Semaphore	—	SPRUG14
Serial Rapid IO	SRIO	SPRUG23
Software-Programmable Phase-Locked Loop Controller	PLL	SPRUG09
Timer, 64-bit	Timer	SPRUG18
Turbo Decoder Coprocessor 2	TCP2	SPRUG21
Viterbi Decoder Coprocessor 2	VCP2	SPRUG20

4 Performance Value TMS320C6000 DSPs

The performance value DSPs offer the industry's most-efficient performance value fixed-point DSPs ideal for broadband infrastructure and performance audio applications.

4.1 TMS320C62x DSP Peripherals

Peripherals available on the TMS320C62x™ Digital Signal Processors (DSP) and their associated literature number are listed in Table 10.

Table 10. TMS320C62x DSP Peripherals Documentation

			C62x					
Peripheral/Module	**Acronym**	**Lit #**	**01**	**02**	**03**	**04**	**05**	**11**
Boot Modes and Configuration	—	SPRU642	√	√	√	√	√	—
Enhanced Direct Memory Access Controller	EDMA	SPRU234	—	—	—	—	—	√
Expansion Bus	XBUS	SPRU579	—	√	√	√	—	—
External Memory Interface	EMIF	SPRU266	√	√	√	√	√	√
Host Port Interface	HPI	SPRU578	√	—	—	—	—	√
Interrupt Selector	Interrupts	SPRU646	√	√	√	√	√	—
Multichannel Buffered Serial Port	McBSP	SPRU580	√	√	√	√	√	√
Peripheral Component Interconnect	PCI	SPRU581	—	—	—	—	√	—
Power-Down Logic and Modes	—	SPRU728	√	√	√	√	√	√
Program and Data Memory Controller/ Direct Memory Access Controller	DMA	SPRU577	√	√	√	√	√	—
Timer, 32-bit	Timer	SPRU582	√	√	√	√	√	√
Two-Level Internal Memory	Cache	SPRU609	—	—	—	—	—	√

4.2 TMS320C64x DSP Peripherals

Peripherals available on the TMS320C64x™ Digital Signal Processors (DSP) and their associated literature number are listed in Table 11.

Table 11. TMS320C64x DSP Peripherals Documentation

			C64x				
Peripheral/Module	**Acronym**	**Lit #**	**10**	**11**	**12**	**13**	**18**
Enhanced Direct Memory Access Controller	EDMA	SPRU234	√	√	√	√	√
Ethernet Media Access Controller/ Management Data Input/Output Module	EMAC/MDIO	SPRU628	—	—	√	—	—
External Memory Interface	EMIF	SPRU266	√	√	√	√	√
General-Purpose Input/Output	GPIO	SPRU584	√	√	√	√	√
Host Port Interface	HPI	SPRU578	√	√	√	√	√
Inter-Integrated Circuit	I2C	SPRU175	√	—	√	√	√
Inter-Integrated Circuit Addendum	—	SPRZ221	√	—	—	√	√
Multichannel Audio Serial Port	McASP	SPRU041	√	—	—	√	√
Multichannel Buffered Serial Port	McBSP	SPRU580	√	√	√	√	√
Peripheral Component Interconnect	PCI	SPRU581	—	√	√	—	—
Power-Down Logic and Modes	—	SPRU728	√	√	√	√	√
Timer, 32-bit	Timer	SPRU582	√	√	√	√	√
Two-Level Internal Memory	Cache	SPRU610	√	√	√	√	√
Viterbi Decoder Coprocessor	VCP	SPRU533	—	—	—	—	√

4.3 TMS320C642x DSP Peripherals

Peripherals available on the TMS320C642x™ Digital Signal Processors (DSP) and their associated literature numbers are listed in Table 12.

Table 12. TMS320C642x DSP Peripherals Documentation

			C64x	
Peripheral/Module	**Acronym**	**Lit #**	**21**	**24**
Asynchronous External Memory Interface	EMIF	SPRUEM7	√	√
DDR2 Memory Controller	DDR2	SPRUEM4	√	√
DSP Megamodule—Internal Direct Memory Access Controller	IDMA	SPRU871	√	√
DSP Megamodule—Interrupt Controller	INTC	SPRU871	√	√
DSP Megamodule—Power-Down Controller	PDC	SPRU871	√	√
Enhanced Direct Memory Access Controller	EDMA	SPRUEM5	√	√
Ethernet Media Access Controller/Management Data Input/Output Module	EMAC/MDIO	SPRUEM6	√	√
General-Purpose Input/Output	GPIO	SPRUEM8	√	√
Host Port Interface	HPI	SPRUEM9	√	√
Inter-Integrated Circuit Module	I2C	SPRUEN0	√	√
Multichannel Audio Serial Port	McASP	SPRUEN1	√	√
Multichannel Buffered Serial Port	McBSP	SPRUEN2	√	√
Peripheral Component Interconnect	PCI	SPRUEN3	—	√
Phase-Locked Loop Controller	PLLC	SPRUES0	√	√
Power and Sleep Controller	PSC	SPRUEN8	√	√
Pulse-Width Modulator	PWM	SPRUEN4	√	√
Timer, 64-bit	Timer	SPRUEN5	√	√
Universal Asynchronous Receiver/Transmitter	UART	SPRUEN6	√	√
Two-Level Internal Memory	Cache	SPRU862	√	√
VLYNQ Port	VLYNQ	SPRUEN7	√	√

5 Floating-Point TMS320C6000 DSPs

The floating-point DSPs offer the industry's most-advanced DSP C compiler and Assembly Optimizer to maximize efficiency and performance. These devices are ideal for professional audio products, mixers, audio synthesis, instrument/amplifier modeling, audio conferencing and broadcast; biometrics, medical, industrial, digital imaging, speech recognition and voice-over packet.

5.1 TMS320C67x DSP Peripherals

Peripherals available on the TMS320C67x™ Digital Signal Processors (DSP) and their associated literature number are listed in Table 13.

Table 13. TMS320C67x DSP Peripherals Documentation

			C67x			
Peripheral/Module	**Acronym**	**Lit #**	**01**	**11**	**12**	**13**
Boot Modes and Configuration	—	SPRU642	√	—	—	—
Enhanced Direct Memory Access Controller	EDMA	SPRU234	—	√	√	√
External Memory Interface	EMIF	SPRU266	√	√	√	√
General-Purpose Input/Output	GPIO	SPRU584	—	√	√	√
Host Port Interface	HPI	SPRU578	√	√	—	√
Inter-Integrated Circuit	I2C	SPRU175	—	—	—	√
Interrupt Selector	Interrupts	SPRU646	√	—	—	—
Multichannel Audio Serial Port	McASP	SPRU041	—	—	—	√
Multichannel Buffered Serial Port	McBSP	SPRU580	√	√	√	√
Phase-Locked Loop Controller	PLL	SPRU233	—	√	√	√
Power-Down Logic and Modes	—	SPRU728	√	√	√	√
Program and Data Memory Controller/ Direct Memory Access Controller	DMA	SPRU577	√	—	—	—
Timer, 32-bit	Timer	SPRU582	√	√	√	√
Two-Level Internal Memory	Cache	SPRU609	—	√	√	√

5.2 TMS320C672x DSP Peripherals

Peripherals available on the TMS320C672x™ Digital Signal Processors (DSP) and their associated literature number are listed in Table 14.

Table 14. TMS320C672x DSP Peripherals Documentation

			C67x			
Peripheral/Module	**Acronym**	**Lit #**	**20**	**22**	**26**	**27**
Dual Data Movement Accelerator	dMAX	SPRU795	√	√	√	√
External Memory Interface	EMIF	SPRU711	√	√	√	√
Inter-Integrated Circuit	I2C	SPRU877	√	√	√	√
Multichannel Audio Serial Port	McASP	SPRU878	√	√	√	√
Phase-Locked Loop Controller and Clock Generation	PLL	SPRU879	√	√	√	√
Real-Time Interrupt	RTI	SPRU717	√	√	√	√
Serial Peripheral Interface	SPI	SPRU718	√	√	√	√
Universal Host Port Interface	UHPI	SPRU719	—	—	—	√

5.3 TMS320C674x DSP Peripherals

Peripherals available on the TMS320C674x Digital Signal Processors (DSP) and their associated literature number are listed in Table 15.

Table 15. TMS320C674x DSP Peripherals Documentation

			C67x					
Peripheral/Module	**Acronym**	**Lit #**	**42**	**43**	**45**	**46**	**47**	**48**
DDR2/mDDR Memory Controller	DDR2	SPRUGJ4	√	—	—	√	—	√
DSP Interrupt Controller	INTC	SPRUFK5	√	√	√	√	√	√
Enhanced Capture Module	eCAP	SPRUFL2	√	√	√	√	√	√
Enhanced Direct Memory Access Controller	EDMA3	SPRUFL1	—	√	√	—	√	—
	EDMA3	SPRUGP9	√	—	—	√	—	√
Enhanced High-Resolution Pulse-Width Modulator	eHRPWM	SPRUFL3	√	√	√	√	√	√
Enhanced Quadrature Encoder Pulse Module	eQEP	SPRUFL4	—	√	√	—	√	—
Ethernet Media Access Controller/ Management Data Input/Output Module	EMAC/MDIO	SPRUFL5	—	√	√	√	√	√
External Memory Interface A	EMIFA	SPRUFL6	√	√	√	√	√	√
External Memory Interface B	EMIFB	SPRUFL7	—	√	√	—	√	—
General-Purpose Input/Output	GPIO	SPRUFL8	√	√	√	√	√	√
Host Port Interface	HPI	SPRUFM7	√	—	—	√	√	√
Inter-Integrated Circuit Module	I2C	SPRUFL9	√	√	√	√	√	√
Internal Direct Memory Access Controller	IDMA	SPRUFK5	√	√	√	√	√	√
Liquid Crystal Display Controller	LCDC	SPRUFM0	—	—	—	—	√	√
Multichannel Audio Serial Port	McASP	SPRUFM1	√	√	√	√	√	√
Multichannel Buffered Serial Port	McBSP	SPRUGJ6	√	—	—	√	—	√
Multimedia Card/Secure Digital Card Controller	MMC/SD	SPRUFM2	—	√	√	√	√	√
Phase-Locked Loop Controller	PLLC	*System Reference Guide* (1)	√	√	√	√	√	√
Power-Down Controller	PDC	SPRUFK5	√	√	√	√	√	√
Power and Sleep Controller	PSC	*System Reference Guide* (1)	√	√	√	√	√	√
√Real-Time Clock	RTC	SPRUFM3	√	—	—	√	√	√
Serial ATA Controller	SATA	SPRUGJ8	—	—	—	—	—	√
Serial Peripheral Interface	SPI	SPRUFM4	√	√	√	√	√	√
System Configuration Module	SCM	*System Reference Guide* (1)	√	√	√	√	√	√
64-Bit Timer Plus	Timer	SPRUFM5	√	√	√	√	√	√
Universal Asynchronous Receiver/Transmitter	UART	SPRUFM6	√	√	√	√	√	√
Universal Parallel Port	uPP	SPRUGJ5	—	—	—	√	—	√
Universal Serial Bus 1.1 Controller	USB1.1	SPRUFM8	—	—	—	—	√	√
Universal Serial Bus 2.0 Controller	USB2.0	SPRUFM9	—	—	√	√	√	√
Video Port Interface	VPIF	SPRUGJ9	—	—	—	√	—	√

(1) For TMS320C6742 DSP, see *TMS320C6742 DSP System Reference Guide* (SPRUGM5);
for TMS320C6743 DSP, see *TMS320C6743 DSP System Reference Guide* (SPRUGJ0);
for TMS320C6745/C6747 DSP, see *TMS320C6745/C6747 DSP System Reference Guide* (SPRUFK4);
for TMS320C6746 DSP, see *TMS320C6746 DSP System Reference Guide* (SPRUGM6);
for TMS320C6748 DSP, see *TMS320C6748 DSP System Reference Guide* (SPRUGJ7).

6 OMAP Applications Processors

The OMAP™ platform delivers a variety of high-performance applications processors with fast, portable power and a robust support network with a software portfolio that includes open source.

6.1 OMAP-L1x Applications Processor Peripherals

Peripherals available on the OMAP-L1x Applications Processor and their associated literature number are listed in Table 16.

Table 16. OMAP-L1x Applications Processor Peripherals Documentation

			OMAP-L1x	
Peripheral/Module	**Acronym**	**Lit #**	**L137**	**L138**
ARM Interrupt Controller	AINTC	SPRUG84	√	—
	AINTC	SPRUGM7	—	√
DDR2/mDDR Memory Controller	DDR2	SPRUGJ4	—	√
DSP Interrupt Controller	INTC	SPRUFK5	√	√
Enhanced Capture Module	eCAP	SPRUFL2	√	√
Enhanced Direct Memory Access Controller	EDMA3	SPRUFL1	√	—
	EDMA3	SPRUGP9	—	√
Enhanced High-Resolution Pulse-Width Modulator	eHRPWM	SPRUFL3	√	√
Enhanced Quadrature Encoder Pulse Module	eQEP	SPRUFL4	√	—
Ethernet Media Access Controller/ Management Data Input/Output Module	EMAC/MDIO	SPRUFL5	√	√
External Memory Interface A	EMIFA	SPRUFL6	√	√
External Memory Interface B	EMIFB	SPRUFL7	√	—
General-Purpose Input/Output	GPIO	SPRUFL8	√	√
Host Port Interface	HPI	SPRUFM7	√	√
Inter-Integrated Circuit Module	I2C	SPRUFL9	√	√
Internal Direct Memory Access Controller	IDMA	SPRUFK5	√	√
Liquid Crystal Display Controller	LCDC	SPRUFM0	√	√
Multichannel Audio Serial Port	McASP	SPRUFM1	√	√
Multichannel Buffered Serial Port	McBSP	SPRUGJ6	—	√
Multimedia Card/Secure Digital Card Controller	MMC/SD	SPRUFM2	√	√
Phase-Locked Loop Controller	PLLC	SPRUG84	√	—
	PLLC	SPRUGM7	—	√
Power-Down Controller	PDC	SPRUFK5	√	√
Power and Sleep Controller	PSC	SPRUG84	√	—
	PSC	SPRUGM7	—	√
Real-Time Clock	RTC	SPRUFM3	√	√
Serial ATA Controller	SATA	SPRUGJ8	—	√
Serial Peripheral Interface	SPI	SPRUFM4	√	√
System Configuration Module	SCM	SPRUG84	√	—
	SCM	SPRUGM7	—	√
64-Bit Timer Plus	Timer	SPRUFM5	√	√
Universal Asynchronous Receiver/Transmitter	UART	SPRUFM6	√	√
Universal Parallel Port	uPP	SPRUGJ5	—	√
Universal Serial Bus 1.1 Controller	USB1.1	SPRUFM8	√	√
Universal Serial Bus 2.0 Controller	USB2.0	SPRUFM9	√	√
Video Port Interface	VPIF	SPRUGJ9	—	√

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