Application Report
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# Migrating from TMS320C5515/05 to TMS320C5535/34/33/32

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**ABSTRACT**

This document provides the minimum changes required to migrate from TMS320C5515/05 to TMS320C5535/34/33/32. Enhancements or new features of the TMS320C5535/34/33/32 devices that do not affect migrating from the TMS320C5515/05 devices will also be briefly mentioned in this document.

All efforts have been made to provide a comprehensive list of changes. An update will be provided if additional changes are identified.

The TMS320C5515/05 devices will henceforth be referred to as C5515/05 in this document. The TMS320C5535/34/33/32 devices will henceforth be referred to as C5535/34/33/32 in this document.

More information on the C5535/34/33/32 DSP can be found in the *TMS320C5535, TMS320C5534, TMS320C5533, TMS320C5532 Fixed-Point Digital Signal Processors Data Manual* (literature number SPRS737).

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# 1 Overview

The following table shows the major differences between the two devices. Peripherals that are not included in the table have no changes.

**Table 1. Device Differences**

| | C5535/34/33/32 | | C5515/05 |
|---|---|---|---|
| Max CPU Speed (PLL output) | 50 MHz at 1.05 V<br>50/100 MHz at 1.3 V | | 60/75 MHz at 1.05 V<br>100/120 MHz at 1.3 V<br>150 MHz at 1.4 V (only C5505) |
| On-chip Memory | C5535 | 320KB | 320KB |
| | C5534 | 256KB | |
| | C5533 | 128KB | |
| | C5532 | 64KB | |
| USB_LDO | C5535, C5534, and C5533 | | C5515 |
| DSP_LDO | C5535 and C5534 | | C5515 |
| Bootloader | Boot both encrypted and unencrypted images from 16-bit SPI EEPROM, 24-bit SPI serial flash, I2C EEPROM, SD/SDHC/eMMC/moviNAND, UART, and USB | | Boot both encrypted and unencrypted images from NAND, NOR, 16-bit SPI EEPROM, 24-bit SPI serial flash, I2C EEPROM but only encrypted images from SD/SDHC/MMC/eMMC, and USB |
| Pins and Peripherals | 144-pin BGA (ZHH Suffix)<br>No EMIF support | | 196-pin BGA (ZCH Suffix)<br>EMIF Support |
| FFT Coprocessor (C5535 only) | HWA FFT API Address<br>00fefe9c _hwafft_br<br>00fefeb0 _hwafft_8pts<br>00feff9f _hwafft_16pts<br>00ff00f5 _hwafft_32pts<br>00ff03fe _hwafft_64pts<br>00ff0593 _hwafft_128pts<br>00ff07a4 _hwafft_256pts<br>00ff09a2 _hwafft_512pts<br>00ff0c1c _hwafft_1024pts | | HWA FFT API Address<br>0x00ff6cd6 _hwafft_br<br>0x00ff6cea _hwafft_8pts<br>0x00ff6dd9 _hwafft_16pts<br>0x00ff6f2f _hwafft_32pts<br>0x00ff7238 _hwafft_64pts<br>0x00ff73cd _hwafft_128pts<br>0x00ff75de _hwafft_256pts<br>0x00ff77dc _hwafft_512pts<br>0x00ff7a56 _hwafft_1024pts |

# 2 Operating Conditions

## 2.1 Operating Voltages and CPU Speeds

**Table 2. Operating Voltages and CPU Speeds for C5535/34/33/32 and C5515/05**

| Supply Pins | C5535/34/33/32 | | C5515/05 | |
|---|---|---|---|---|
| $CV_{DD}$ | 1.05 V | 50 MHz | 1.05 V | 60/75 MHz |
| | 1.3 V | 50/100 MHz | 1.3 V | 100/120 MHz |
| | N/A | N/A | 1.4 V | 150 MHz (C5505 only) |
| All other power domains | No changes | | | |

**Table 3. On-Chip RAM Availability**

| On-Chip RAM | Device | | | | |
|---|---|---|---|---|---|
| | C5535 | C5534 | C5533 | C5532 | C5515/05 |
| 320KB | x(1) | -(2) | - | - | x |
| 256KB | x | x | - | - | x |
| 128KB | x | x | x | - | x |
| 64KB | x | x | x | x | x |

(1) x — Supported
(2) - — Not supported

# 3 Low-Dropout Regulators (LDOs)

**Table 4. LDO Availability**

| LDO | Device | | | | | |
|---|---|---|---|---|---|---|
| | C5535 | C5534 | C5533 | C5532 | C5515 | C5505 |
| ANA_LDO | x(1) | x | x | x | x | x |
| USB_LDO | x | x | x | -(2) | x | - |
| DSP_LDO | x | x | - | - | x | - |

(1) x — Supported
(2) - — Not supported

For the 50-MHz devices, DSP_LDO must be programmed to 1.05 V to match the core voltage, $CV_{DD}$, for proper operation after reset. This is because DSP_LDO is enabled to 1.3 V when coming out of reset.

# 4 Pin and Package Considerations

## 4.1 Package

The C5535/34/33/32 uses the 144-pin, 12x12 mm, Green (Pb-free and environmentally friendly) ZHH package. For more information, see the *TMS320C5535, TMS320C5534, TMS320C5533, TMS320C5532 Data Manual* (literature number SPRS737). The C5515/05 uses the 196-pin, 10x10 mm, Green (Pb-free and environmentally friendly) ZCH package.

## 4.2 Pin Compatibility

Due to differences between the C5535/34/33/32 and C5515/05 packages, they are **not** pin-to-pin compatible.

## 4.3 Peripheral Changes

**Table 5. Peripheral Availability**

| Peripheral | Device | | | | |
|---|---|---|---|---|---|
| | C5535 | C5534 | C5533 | C5532 | C5515/05 |
| USB | x(1) | x | x | -(2) | x |
| LCD Interface | x | - | - | - | x |
| HWA FFT | x | - | - | - | x |
| SAR ADC | x | - | - | - | x |

(1) x — Supported
(2) - — Not supported

## 4.4 Pin Maps

Figure 1 through Figure 4 show the pin maps of the C5535/34/33/32 devices.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | $V_{SS}$ | LCD_D[4]/ GP[14] | LCD_D[6]/ GP[16] | $\overline{TRST}$ | LCD_D[8]/ I2S2_CLK/ GP[18]/ SPI_CLK | SD0_D1/ I2S0_RX/ GP[3] | SD0_D3/ GP[5] | LCD_D[7]/ GP[17] | LCD_D[10]/ I2S2_RX/ GP[20]/ SPI_RX | SD1_D1/ I2S1_RX/ GP[9] | LCD_D[11]/ I2S2_DX/ GP[27]/ SPI_TX | LCD_D[13]/ UART_CTS/ GP[29]/ I2S3_FS | LCD_D[14]/ UART_RXD/ GP[30]/ I2S3_RX | $V_{SS}$ |
| N | TDO | LCD_RW_ WRB/SPI_ CS2 | TCK | LCD_D[0]/ SPI_RX | LCD_D[3]/ GP[13] | TMS | LCD_D[5]/ GP[15] | $DV_{DDIO}$ | $CV_{DD}$ | LCD_D[9]/ I2S2_FS/ GP[19]/ SPI_CS0 | $DV_{DDIO}$ | LCD_D[12]/ UART_RTS/ GP[28]/ I2S3_CLK | SD0_D2/ GP[4] | $DV_{DDIO}$ |
| M | EMU1 | LCD_CS1_E1/ SPI_CS1 | $DV_{DDIO}$ | $DV_{DDIO}$ | LCD_RS/ SPI_CS3 | $CV_{DD}$ | $V_{SS}$ | SD0_CLK/ I2S0_CLK/ GP[0] | $CV_{DD}$ | SD0_CMD/ I2S0_FS/ GP[1] | LCD_D[15]/ UART_TXD/ GP[31]/ I2S3_DX | SD1_D3/ GP[11] | SD1_D0/ I2S1_DX/ GP[8] | SD1_CLK/ I2S1_CLK/ GP[6] |
| L | LCD_CS0_ E0/SPI_CS0 | EMU0 | LCD_EN_ RDB/ SPI_CLK | $DV_{DDIO}$ | $V_{SS}$ | | | | | $V_{SS}$ | SD1_CMD/ I2S1_FS/ GP[7] | SD1_D2/ GP[10] | RSV2 | USB_VBUS |
| K | LCD_D[1]/ SPI_TX | TDI | $V_{SS}$ | $V_{SS}$ | | | | | | | $CV_{DD}$ | RSV1 | $USB\_V_{DD1P3}$ | $USB\_V_{SS1P3}$ |
| J | SD0_D0/ I2S0_DX/ GP[2] | LCD_D[2]/ GP[12] | XF | | | | | | | | | $USB\_V_{SSA1P3}$ | $V_{SS}$ | USB_DM |
| H | RSV10 | $CV_{DD}$ | $V_{SS}$ | | | | | | | | | USB_ $V_{DDA1P3}$ | $USB\_V_{SSA3P3}$ | USB_DP |
| G | RSV9 | RSV12 | $CV_{DD}$ | | | | | | | | | $USB\_V_{DDA3P3}$ | $USB\_V_{DDPLL}$ | USB_R1 |
| F | RSV8 | $CV_{DD}$ | $V_{SS}$ | | | | | | | | | $USB\_V_{SSREF}$ | $USB\_V_{SSPLL}$ | $USB\_V_{DD1P3}$ |
| E | RSV7 | RSV11 | $V_{SS}$ | $V_{SS}$ | | | | | | | $V_{SS}$ | $USB\_V_{DD1P3}$ | $USB\_V_{DDOSC}$ | USB_MXI |
| D | CLK_SEL | $\overline{RESET}$ | $CV_{DD}$ | $V_{SS}$ | $V_{SS}$ | | | | | $V_{SS}$ | $CV_{DD}$ | $USB\_V_{SSOSC}$ | USB_LDOO | USB_MXO |
| C | CLKIN | $\overline{INT0}$ | $DV_{DDRTC}$ | SCL | $V_{SSRTC}$ | $DV_{DDIO}$ | $V_{DDA\_PLL}$ | $V_{SS}$ | $V_{SSA\_ANA}$ | BG_CAP | $CV_{DD}$ | $V_{SS}$ | $\overline{DSP\_LDO\_EN}$ | LDOI |
| B | $\overline{INT1}$ | $V_{SS}$ | $V_{SS}$ | $CV_{DDRTC}$ | $CV_{DDRTC}$ | $V_{SSA\_ANA}$ | $V_{DDA\_ANA}$ | GPAIN1 | ANA_LDOO | LDOI | RSV5 | RSV3 | RSV6 | LDOI |
| A | $V_{SSA\_PLL}$ | CLKOUT | RTC_CLKOUT | SDA | WAKEUP | RTC_XO | RTC_XI | GPAIN0 | GPAIN2 | GPAIN3 | RSV4 | RSV0 | DSP_LDOO | $V_{SS}$ |

**Figure 1. C5535 Pin Map**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | $V_{SS}$ | GP[14] | GP[16] | $\overline{TRST}$ | I2S2_CLK/ GP[18]/ SPI_CLK | SD0_D1/ I2S0_RX/ GP[3] | SD0_D3/ GP[5] | GP[17] | I2S2_RX/ GP[20]/ SPI_RX | SD1_D1/ I2S1_RX/ GP[9] | I2S2_DX/ GP[27]/ SPI_TX | UART_CTS/ GP[29]/ I2S3_FS | UART_RXD/ GP[30]/ I2S3_RX | $V_{SS}$ |
| N | TDO | SPI_CS2 | TCK | SPI_RX | GP[13] | TMS | GP[15] | $DV_{DDIO}$ | $CV_{DD}$ | I2S2_FS/ GP[19]/ SPI_CS0 | $DV_{DDIO}$ | UART_RTS/ GP[28]/ I2S3_CLK | SD0_D2/ GP[4] | $DV_{DDIO}$ |
| M | EMU1 | SPI_CS1 | $DV_{DDIO}$ | $DV_{DDIO}$ | SPI_CS3 | $CV_{DD}$ | $V_{SS}$ | SD0_CLK/ I2S0_CLK/ GP[0] | $CV_{DD}$ | SD0_CMD/ I2S0_FS/ GP[1] | UART_TXD/ GP[31]/ I2S3_DX | SD1_D3/ GP[11] | SD1_D0/ I2S1_DX/ GP[8] | SD1_CLK/ I2S1_CLK/ GP[6] |
| L | SPI_CS0 | EMU0 | SPI_CLK | $DV_{DDIO}$ | $V_{SS}$ | | | | | $V_{SS}$ | SD1_CMD/ I2S1_FS/ GP[7] | SD1_D2/ GP[10] | RSV2 | USB_VBUS |
| K | SPI_TX | TDI | $V_{SS}$ | $V_{SS}$ | | | | | | | $CV_{DD}$ | RSV1 | $USB\_V_{DD1P3}$ | $USB\_V_{SS1P3}$ |
| J | SD0_D0/ I2S0_DX/ GP[2] | GP[12] | XF | | | | | | | | | $USB\_V_{SSA1P3}$ | $V_{SS}$ | USB_DM |
| H | RSV10 | $CV_{DD}$ | $V_{SS}$ | | | | | | | | | USB_ $V_{DDA1P3}$ | $USB\_V_{SSA3P3}$ | USB_DP |
| G | RSV9 | RSV12 | $CV_{DD}$ | | | | | | | | | $USB\_V_{DDA3P3}$ | $USB\_V_{DDPLL}$ | USB_R1 |
| F | RSV8 | $CV_{DD}$ | $V_{SS}$ | | | | | | | | | $USB\_V_{SSREF}$ | $USB\_V_{SSPLL}$ | $USB\_V_{DD1P3}$ |
| E | RSV7 | RSV11 | $V_{SS}$ | $V_{SS}$ | | | | | | | $V_{SS}$ | $USB\_V_{DD1P3}$ | $USB\_V_{DDOSC}$ | USB_MXI |
| D | CLK_SEL | $\overline{RESET}$ | $CV_{DD}$ | $V_{SS}$ | $V_{SS}$ | | | | | $V_{SS}$ | $CV_{DD}$ | $USB\_V_{SSOSC}$ | USB_LDOO | USB_MXO |
| C | CLKIN | $\overline{INT0}$ | $DV_{DDRTC}$ | SCL | $V_{SSRTC}$ | $DV_{DDIO}$ | $V_{DDA\_PLL}$ | $V_{SS}$ | $V_{SSA\_ANA}$ | BG_CAP | $CV_{DD}$ | $V_{SS}$ | $\overline{DSP\_LDO\_EN}$ | LDOI |
| B | $\overline{INT1}$ | $V_{SS}$ | $V_{SS}$ | $CV_{DDRTC}$ | $CV_{DDRTC}$ | $V_{SSA\_ANA}$ | $V_{DDA\_ANA}$ | NC | ANA_LDOO | LDOI | RSV5 | RSV3 | RSV6 | LDOI |
| A | $V_{SSA\_PLL}$ | CLKOUT | RTC_CLKOUT | SDA | WAKEUP | RTC_XO | RTC_XI | NC | NC | NC | RSV4 | RSV0 | DSP_LDOO | $V_{SS}$ |

**Figure 2. C5534 Pin Map**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | $V_{SS}$ | GP[14] | GP[16] | $\overline{TRST}$ | I2S2_CLK/ GP[18]/ SPI_CLK | SD0_D1/ I2S0_RX/ GP[3] | SD0_D3/ GP[5] | GP[17] | I2S2_RX/ GP[20]/ SPI_RX | SD1_D1/ I2S1_RX/ GP[9] | I2S2_DX/ GP[27]/ SPI_TX | UART_CTS/ GP[29]/ I2S3_FS | UART_RXD/ GP[30]/ I2S3_RX | $V_{SS}$ |
| N | TDO | SPI_CS2 | TCK | SPI_RX | GP[13] | TMS | GP[15] | $DV_{DDIO}$ | $CV_{DD}$ | I2S2_FS/ GP[19]/ SPI_CS0 | $DV_{DDIO}$ | UART_RTS/ GP[28]/ I2S3_CLK | SD0_D2/ GP[4] | $DV_{DDIO}$ |
| M | EMU1 | SPI_CS1 | $DV_{DDIO}$ | $DV_{DDIO}$ | SPI_CS3 | $CV_{DD}$ | $V_{SS}$ | SD0_CLK/ I2S0_CLK/ GP[0] | $CV_{DD}$ | SD0_CMD/ I2S0_FS/ GP[1] | UART_TXD/ GP[31]/ I2S3_DX | SD1_D3/ GP[11] | SD1_D0/ I2S1_DX/ GP[8] | SD1_CLK/ I2S1_CLK/ GP[6] |
| L | SPI_CS0 | EMU0 | SPI_CLK | $DV_{DDIO}$ | $V_{SS}$ | | | | | $V_{SS}$ | SD1_CMD/ I2S1_FS/ GP[7] | SD1_D2/ GP[10] | RSV2 | USB_VBUS |
| K | SPI_TX | TDI | $V_{SS}$ | $V_{SS}$ | | | | | | | $CV_{DD}$ | RSV1 | $USB\_V_{DD1P3}$ | $USB\_V_{SS1P3}$ |
| J | SD0_D0/ I2S0_DX/ GP[2] | GP[12] | XF | | | | | | | | | $USB\_V_{SSA1P3}$ | $V_{SS}$ | USB_DM |
| H | RSV10 | $CV_{DD}$ | $V_{SS}$ | | | | | | | | | USB_ $V_{DDA1P3}$ | $USB\_V_{SSA3P3}$ | USB_DP |
| G | RSV9 | RSV12 | $CV_{DD}$ | | | | | | | | | $USB\_V_{DDA3P3}$ | $USB\_V_{DDPLL}$ | USB_R1 |
| F | RSV8 | $CV_{DD}$ | $V_{SS}$ | | | | | | | | | $USB\_V_{SSREF}$ | $USB\_V_{SSPLL}$ | $USB\_V_{DD1P3}$ |
| E | RSV7 | RSV11 | $V_{SS}$ | $V_{SS}$ | | | | | | | $V_{SS}$ | $USB\_V_{DD1P3}$ | $USB\_V_{DDOSC}$ | USB_MXI |
| D | CLK_SEL | $\overline{RESET}$ | $CV_{DD}$ | $V_{SS}$ | $V_{SS}$ | | | | | $V_{SS}$ | $CV_{DD}$ | $USB\_V_{SSOSC}$ | USB_LDOO | USB_MXO |
| C | CLKIN | $\overline{INT0}$ | $DV_{DDRTC}$ | SCL | $V_{SSRTC}$ | $DV_{DDIO}$ | $V_{DDA\_PLL}$ | $V_{SS}$ | $V_{SSA\_ANA}$ | BG_CAP | $CV_{DD}$ | $V_{SS}$ | $\overline{DSP\_LDO\_EN}$ (1) | LDOI |
| B | $\overline{INT1}$ | $V_{SS}$ | $V_{SS}$ | $CV_{DDRTC}$ | $CV_{DDRTC}$ | $V_{SSA\_ANA}$ | $V_{DDA\_ANA}$ | NC | ANA_LDOO | LDOI | RSV5 | RSV3 | RSV6 | LDOI |
| A | $V_{SSA\_PLL}$ | CLKOUT | RTC_CLKOUT | SDA | WAKEUP | RTC_XO | RTC_XI | NC | NC | NC | RSV4 | RSV0 | DSP_LDOO (2) | $V_{SS}$ |

(1) DSP_LDOO is not supported on the TMS320C5533. An external power supply is used to provide power to $CV_{DD}$, $\overline{DSP\_LDO\_EN}$ should be tied to LDOI, and DSP_LDOO should be left unconnected. The $\overline{RESET}$ pin must be asserted appropriately for device initialization after power up.

(2) DSP_LDOO is not supported on the TMS320C5533. For proper device operation, this pin must be left connected. DSP_LDOO can be enabled to provide a regulated 1.3- or 1.05-V output only to the internal POR to support the RTC-only mode. For more information, see the *RTC Only Mode* section in the *TMS320C5535, TMS320C5534, TMS320C5533, TMS320C5532 Data Manual* (literature number SPRS737).

**Figure 3. C5533 Pin Map**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | $V_{SS}$ | GP[14] | GP[16] | $\overline{TRST}$ | I2S2_CLK/ GP[18]/ SPI_CLK | SD0_D1/ I2S0_RX/ GP[3] | SD0_D3/ GP[5] | GP[17] | I2S2_RX/ GP[20]/ SPI_RX | SD1_D1/ I2S1_RX/ GP[9] | I2S2_DX/ GP[27]/ SPI_TX | UART_CTS/ GP[29]/ I2S3_FS | UART_RXD/ GP[30]/ I2S3_RX | $V_{SS}$ |
| N | TDO | SPI_CS2 | TCK | SPI_RX | GP[13] | TMS | GP[15] | $DV_{DDIO}$ | $CV_{DD}$ | I2S2_FS/ GP[19]/ SPI_CS0 | $DV_{DDIO}$ | UART_RTS/ GP[28]/ I2S3_CLK | SD0_D2/ GP[4] | $DV_{DDIO}$ |
| M | EMU1 | SPI_CS1 | $DV_{DDIO}$ | $DV_{DDIO}$ | SPI_CS3 | $CV_{DD}$ | $V_{SS}$ | SD0_CLK/ I2S0_CLK/ GP[0] | $CV_{DD}$ | SD0_CMD/ I2S0_FS/ GP[1] | UART_TXD/ GP[31]/ I2S3_DX | SD1_D3/ GP[11] | SD1_D0/ I2S1_DX/ GP[8] | SD1_CLK/ I2S1_CLK/ GP[6] |
| L | SPI_CS0 | EMU0 | SPI_CLK | $DV_{DDIO}$ | $V_{SS}$ | | | | | $V_{SS}$ | SD1_CMD/ I2S1_FS/ GP[7] | SD1_D2/ GP[10] | RSV2 | USB_$V_{BUS}$ |
| K | SPI_TX | TDI | $V_{SS}$ | $V_{SS}$ | | | | | | | $CV_{DD}$ | RSV1 | USB_$V_{DD1P3}$ | USB_$V_{SS1P3}$ |
| J | SD0_D0/ I2S0_DX/ GP[2] | GP[12] | XF | | | | | | | | | USB_$V_{SSA1P3}$ | $V_{SS}$ | USB_DM |
| H | RSV10 | $CV_{DD}$ | $V_{SS}$ | | | | | | | | | USB_ $V_{DDA1P3}$ | USB_$V_{SSA3P3}$ | USB_DP |
| G | RSV9 | RSV12 | $CV_{DD}$ | | | | | | | | | USB_$V_{DDA3P3}$ | USB_$V_{DDPLL}$ | USB_R1 |
| F | RSV8 | $CV_{DD}$ | $V_{SS}$ | | | | | | | | | USB_$V_{SSREF}$ | USB_$V_{SSPLL}$ | USB_$V_{DD1P3}$ |
| E | RSV7 | RSV11 | $V_{SS}$ | $V_{SS}$ | | | | | | | $V_{SS}$ | USB_$V_{DD1P3}$ | USB_$V_{DDOSC}$ | USB_MXI |
| D | CLK_SEL | $\overline{RESET}$ | $CV_{DD}$ | $V_{SS}$ | $V_{SS}$ | | | | | $V_{SS}$ | $CV_{DD}$ | USB_$V_{SSOSC}$ | USB_ LDOO(1) | USB_MXO |
| C | CLKIN | $\overline{INT0}$ | $DV_{DDRTC}$ | SCL | $V_{SSRTC}$ | $DV_{DDIO}$ | $V_{DDA\_PLL}$ | $V_{SS}$ | $V_{SSA\_ANA}$ | BG_CAP | $CV_{DD}$ | $V_{SS}$ | $\overline{DSP\_LDO\_EN}$(2) | LDOI |
| B | $\overline{INT1}$ | $V_{SS}$ | $V_{SS}$ | $CV_{DDRTC}$ | $CV_{DDRTC}$ | $V_{SSA\_ANA}$ | $V_{DDA\_ANA}$ | NC | ANA_LDOO | LDOI | RSV5 | RSV3 | RSV6 | LDOI |
| A | $V_{SSA\_PLL}$ | CLKOUT | RTC_CLKOUT | SDA | WAKEUP | RTC_XO | RTC_XI | NC | NC | NC | RSV4 | RSV0 | DSP_ LDOO(3) | $V_{SS}$ |

(1) USB_LDOO is not supported on the TMS320C5532. For proper device operation, this pin must be left unconnected.

(2) DSP_LDOO is not supported on the TMS320C5532. An external power supply is used to provide power to $CV_{DD}$, $\overline{DSP\_LDO\_EN}$ should be tied to LDOI, and DSP_LDOO should be left unconnected. The $\overline{RESET}$ pin must be asserted appropriately for device initialization after power up.

(3) DSP_LDOO is not supported on the TMS320C5532. For proper device operation, this pin must be left connected. DSP_LDOO can be enabled to provide a regulated 1.3- or 1.05-V output only to the internal POR to support the RTC-only mode. For more information, see the *RTC Only Mode* section in the *TMS320C5535, TMS320C5534, TMS320C5533, TMS320C5532 Data Manual* (literature number SPRS737).

Shaded pins are not supported on this device. To ensure proper device operation, these pins must be hooked up properly. For more information, see the *Unsupported USB 2.0 Terminal Functions* section in the *TMS320C5535, TMS320C5534, TMS320C5533, TMS320C5532 Data Manual* (literature number SPRS737).

**Figure 4. C5532 Pin Map**

# 5 Bootloader

The C5535/34/33/32 bootloader includes the following changes to support new features:

- Adds unencrypted boot image from SD/SDHC/eMMC/moviNAND, UART, and USB
- Supports reauthoring for 16-bit SPI EEPROM, I2C EEPROM, and SD/SDHC/eMMC/moviNAND
- Does not support NOR, NAND, and MMC

See the *Boot Sequence* section in the *TMS320C5535, TMS320C5534, TMS320C5533, TMS320C5532 Data Manual* (literature number SPRS737) for details.

# Revision History

**Changes from Original (November, 2011) to A Revision** **Page**

- Changed description of $\overline{\text{DSP\_LDO\_EN}}$ pin ..... 7
- Added description of DSP_LDOO pin ..... 7
- Added description of USB_LDOO pin ..... 8
- Added description of $\overline{\text{DSP\_LDO\_EN}}$ pin ..... 8
- Added description of DSP_LDOO pin ..... 8

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

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