

---

|                             |  |
|-----------------------------|--|
| <b>Product Name</b>         | List of DAVE APPs  |
| <b>Release Version</b>      | Refer section 1  |
| <b>Type Of Release*</b>     | See Individual DAVE APPs   |
| <b>Name of the Supplier</b> | Infineon Technologies AG   |
| <b>Mode of Release</b>      | Infineon Server( <a href="http://dave.infineon.com/">http://dave.infineon.com/</a> ) |
| <b>Date of Release</b>      | 2017-08-07   |
| <b>Previous Version</b>     | Refer DAVE APPs release notes 2017-04-18   |

---

## Contents

|  |           |
|--|-----------|
| <b>1 Released Items .....</b>                | <b>2</b>  |
| <b>2 Support Packages .....</b>              | <b>7</b>  |
| <b>3 Tool Information .....</b>              | <b>8</b>  |
| <b>4 Changes from Previous Version .....</b> | <b>9</b>  |
| <b>5 Installation Requirements .....</b>     | <b>24</b> |
| <b>6 Known Limitations .....</b>             | <b>25</b> |
| <b>7 DAVE APPs Revision History .....</b>    | <b>27</b> |

\* All types of releases named as Alpha, Beta, Release Candidate and Patch are not intended to be used for production code.

## 1 Released Items

### 1.1 DAVE APPs

This update site contains different general purpose APPs and a variety of DAVE APPs that cover dedicated use cases like, Motor Control, Power Conversion, Communication etc., and the update site contains the following **99** DAVE APPs which supports XMC4000 and XMC1000 family microcontrollers.

#### 1.1.1 Motor Control APPs

| No | DAVE APPs      | Version | XMC45 | XMC44 | XMC42 | XMC41 | XMC13 | XMC12 | XMC11 | XMC14 | XMC48 | XMC43 | XMC47 |
|----|----------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1  | ACIM_FREQ_CTRL | 4.0.8   | ✓     | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | -     |       | -     |
| 2  | AUTOMATION     | 4.0.10  | ✓     | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | -     |       | -     |
| 3  | GLOBAL_POSIF   | 4.0.12  | ✓     | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | -     |       | -     |
| 4  | MOTOR_LIB      | 4.0.8   | ✓     | ✓     | ✓     | ✓     | ✓     | -     | -     | ✓     | ✓     | ✓     | ✓     |
| 5  | PMSM_FOC       | 4.2.4   | ✓     | ✓     | ✓     | ✓     | ✓     | -     | -     | ✓     | ✓     | ✓     | ✓     |
| 6  | PWM_BC         | 4.0.14  | ✓     | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | -     |       | -     |
| 7  | PWM_SVM        | 4.0.20  | ✓     | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | ✓     | ✓     | ✓     |

#### 1.1.2 Power Conversion APPs

| No | DAVE APPs       | Version | XMC45 | XMC44 | XMC42 | XMC41 | XMC13 | XMC12 | XMC11 | XMC14 | XMC48 | XMC43 | XMC47 |
|----|-----------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1  | BUCK_VC_FIX_FQ  | 4.1.2   | -     | ✓     | ✓     | ✓     | ✓     | -     | -     | ✓     | -     | -     | -     |
| 2  | BUCK_PCC_FIX_FQ | 4.1.2   | -     | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | -     | -     | -     |
| 3  | COMP_REF        | 4.1.8   | -     | -     | -     | -     | ✓     | ✓     | -     | ✓     | -     | -     | -     |
| 4  | COMP_SLOPE_GEN  | 4.0.8   | -     | ✓     | ✓     | ✓     | -     | -     | -     | -     | -     | -     | -     |
| 5  | GLOBAL_HRPWM    | 4.0.12  | -     | ✓     | ✓     | ✓     | -     | -     | -     | -     | -     | -     | -     |
| 6  | HRPWM           | 4.1.20  | -     | ✓     | ✓     | ✓     | -     | -     | -     | -     | -     | -     | -     |
| 7  | CONTROL_LIB     | 4.0.10  | ✓     | ✓     | ✓     | ✓     | ✓     | -     | -     | ✓     | ✓     | ✓     | ✓     |

#### 1.1.3 Lighting APPs

| No | DAVE APPs | Version | XMC45 | XMC44 | XMC42 | XMC41 | XMC13 | XMC12 | XMC11 | XMC14 | XMC48 | XMC43 | XMC47 |
|----|-----------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1  | DIM_BCCU  | 4.1.6   | -     | -     | -     | -     | ✓     | ✓     | -     | ✓     | -     | -     | -     |
| 2  | DMX512_RD | 4.0.16  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |

|   |                     |       |   |   |   |   |   |   |   |   |   |   |   |
|---|---------------------|-------|---|---|---|---|---|---|---|---|---|---|---|
| 3 | GLOBAL_BCCU         | 4.1.6 | - | - | - | - | ✓ | ✓ | - | ✓ | - | - | - |
| 4 | PDM_DIMMED_LED_LAMP | 4.0.6 | - | - | - | - | ✓ | ✓ | - | ✓ | - | - | - |
| 5 | PDM_BCCU            | 4.1.8 | - | - | - | - | ✓ | ✓ | - | ✓ | - | - | - |

#### 1.1.4 Communication APPs

| No | DAVE APPs     | Version | XMC45 | XMC44 | XMC42 | XMC41 | XMC13 | XMC12 | XMC11 | XMC14 | XMC48 | XMC43 | XMC47 |
|----|---------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1  | CAN_NODE      | 4.1.14  | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | ✓     | ✓     | ✓     | ✓     |
| 2  | ECAT_SSC      | 4.0.14  | -     | -     | -     | -     | -     | -     | -     | -     | ✓     | ✓     | -     |
| 3  | ETH_LWIP      | 4.1.4   | ✓     | ✓     | -     | -     | -     | -     | -     | -     | ✓     | ✓     | ✓     |
| 4  | FTP_SERVER    | 4.0.2   | ✓     | ✓     | -     | -     | -     | -     | -     | -     | ✓     | ✓     | ✓     |
| 5  | GLOBAL_CAN    | 4.0.16  | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | ✓     | ✓     | ✓     | ✓     |
| 6  | HTTP_SERVER   | 4.0.12  | ✓     | ✓     | -     | -     | -     | -     | -     | -     | ✓     | ✓     | ✓     |
| 7  | I2C_MASTER    | 4.1.20  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 8  | I2C_SLAVE     | 4.0.14  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 9  | MANCHESTER_SW | 4.1.12  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 10 | SDMMC_BLOCK   | 4.0.22  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 11 | SPI_MASTER    | 4.3.20  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 12 | SPI_SLAVE     | 4.0.8   | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 13 | UART          | 4.1.10  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 14 | USB_D         | 4.0.14  | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | -     | ✓     | ✓     | ✓     |
| 15 | USB_D_VCOM    | 4.0.10  | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | -     | ✓     | ✓     | ✓     |
| 16 | USB_D_WINUSB  | 4.0.10  | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | -     | ✓     | ✓     | ✓     |

#### 1.1.5 Human Machine Interface APPs

| No | DAVE APPs         | Version | XMC45 | XMC44 | XMC42 | XMC41 | XMC13 | XMC12 | XMC11 | XMC14 | XMC48 | XMC43 | XMC47 |
|----|-------------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1  | DISPLAY_7SEG      | 4.0.18  | ✓     | ✓     | ✓     | ✓     | -     | ✓     | -     | ✓     | ✓     | ✓     | ✓     |
| 2  | GLOBAL_LEDTS      | 4.0.12  | ✓     | ✓     | ✓     | ✓     | -     | ✓     | -     | ✓     | ✓     | ✓     | ✓     |
| 3  | GUI_SEGGERLIBRARY | 4.1.10  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 4  | LED_MATRIX        | 4.0.12  | ✓     | ✓     | ✓     | ✓     | -     | ✓     | -     | ✓     | ✓     | ✓     | ✓     |
| 5  | LEDTS_COL_CTRL    | 4.0.8   | ✓     | ✓     | ✓     | ✓     | -     | ✓     | -     | ✓     | ✓     | ✓     | ✓     |
| 6  | LEDTS_COLA_CTRL   | 4.0.8   | ✓     | ✓     | ✓     | ✓     | -     | ✓     | -     | ✓     | ✓     | ✓     | ✓     |

## 1.1.6 General Purpose APPs

| No | DAVE APPs           | Version | XMC45 | XMC44 | XMC42 | XMC41 | XMC13 | XMC12 | XMC11 | XMC14 | XMC48 | XMC43 | XMC47 |
|----|---------------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1  | ADC_MEASUREMENT_ADV | 4.0.14  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | -     | ✓     | ✓     | ✓     | ✓     |
| 2  | ADC_MEASUREMENT     | 4.1.22  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 3  | ADC_QUEUE           | 4.0.20  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | -     | ✓     | ✓     | ✓     | ✓     |
| 4  | ADC_SCAN            | 4.0.18  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | -     | ✓     | ✓     | ✓     | ✓     |
| 5  | ANALOG_IO           | 4.0.10  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 6  | BUS_IO              | 4.0.2   | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 7  | CAPTURE             | 4.0.2   | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 8  | CLOCK_XMC1          | 4.0.18  | -     | -     | -     | -     | ✓     | ✓     | ✓     | ✓     | -     | -     | -     |
| 9  | CLOCK_XMC4          | 4.0.22  | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | -     | ✓     | ✓     | ✓     |
| 10 | COUNTER             | 4.1.10  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 11 | CPU_CTRL_XMC1       | 4.0.8   | -     | -     | -     | -     | ✓     | ✓     | ✓     | ✓     | -     | -     | -     |
| 12 | CPU_CTRL_XMC4       | 4.0.14  | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | -     | ✓     | ✓     | ✓     |
| 13 | CRC_SW              | 4.0.6   | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 14 | CRYPTO_AES          | 4.0.8   | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 15 | CMSIS_DSP           | 4.0.14  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 16 | CMSIS_RTOS          | 4.0.4   | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 17 | CMSIS_RTOS_RTX      | 4.0.20  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 18 | DAC                 | 4.0.16  | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | -     | ✓     | ✓     | ✓     |
| 19 | DAC_LUT             | 4.1.14  | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | -     | ✓     | ✓     | ✓     |
| 20 | DAC_SWEEP           | 4.0.16  | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | -     | ✓     | ✓     | ✓     |
| 21 | DIGITAL_IO          | 4.0.16  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 22 | DMA_CH              | 4.1.8   | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | -     | ✓     | ✓     | ✓     |
| 23 | DS_ADC_DEMOD        | 4.0.4   | ✓     | ✓     | -     | -     | -     | -     | -     | -     | ✓     | ✓     | ✓     |
| 24 | E_EEPROM_XMC1       | 4.1.10  | -     | -     | -     | -     | ✓     | ✓     | ✓     | ✓     | -     | -     | -     |
| 25 | E_EEPROM_XMC4       | 4.0.14  | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | -     | ✓     | ✓     | ✓     |
| 26 | EVENT_DETECTOR      | 4.0.6   | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 27 | EVENT_GENERATOR     | 4.1.14  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 28 | FATFS               | 4.0.16  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 29 | FREERTOS            | 4.0.20  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 30 | GLOBAL_ACMP         | 4.0.6   | -     | -     | -     | -     | ✓     | ✓     | -     | ✓     | -     | -     | -     |
| 31 | GLOBAL_ADC          | 4.0.18  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |

|    |                 |        |   |   |   |   |   |   |   |   |   |   |   |
|----|-----------------|--------|---|---|---|---|---|---|---|---|---|---|---|
| 32 | GLOBAL_CCU4     | 4.1.12 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 33 | GLOBAL_CCU8     | 4.1.12 | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | ✓ | ✓ | ✓ | ✓ |
| 34 | GLOBAL_DMA      | 4.0.8  | ✓ | ✓ | ✓ | ✓ | - | - | - | - | ✓ | ✓ | ✓ |
| 35 | GLOBAL_DSD      | 4.0.2  | ✓ | ✓ | - | - | - | - | - | - | ✓ | ✓ | ✓ |
| 36 | GLOBAL_SCU_XMC1 | 4.1.8  | - | - | - | - | ✓ | ✓ | ✓ | ✓ | - | - | - |
| 37 | GLOBAL_SCU_XMC4 | 4.1.10 | ✓ | ✓ | ✓ | ✓ | - | - | - | - | ✓ | ✓ | ✓ |
| 38 | INTERRUPT       | 4.0.8  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 39 | PIN_INTERRUPT   | 4.0.2  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 40 | PWM             | 4.1.10 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 41 | PWM_CCU4        | 4.1.22 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 42 | PWM_CCU8        | 4.1.26 | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | ✓ | ✓ | ✓ | ✓ |
| 43 | RTC             | 4.1.12 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 44 | SYSTIMER        | 4.1.16 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 45 | TIMER           | 4.1.10 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 46 | WATCHDOG        | 4.0.14 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

### 1.1.7 Peripheral Configuration APPs

| No | DAVE APPs          | Version | XMC45 | XMC44 | XMC42 | XMC41 | XMC13 | XMC12 | XMC11 | XMC14 | XMC48 | XMC43 | XMC47 |
|----|--------------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1  | ACMP_CONFIG        | 4.1.2   | -     | -     | -     | -     | ✓     | ✓     | -     | ✓     | -     | -     | -     |
| 2  | CCU4_SLICE_CONFIG  | 4.0.14  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 3  | CCU8_SLICE_CONFIG  | 4.0.18  | ✓     | ✓     | ✓     | ✓     | ✓     | -     | -     | ✓     | ✓     | ✓     | ✓     |
| 4  | FCE_CONFIG         | 4.0.6   | ✓     | ✓     | ✓     | ✓     | -     | -     | -     | -     | ✓     | ✓     | ✓     |
| 5  | I2C_CONFIG         | 4.0.6   | ✓     | ✓     | ✓     | ✓     |       |       |       |       | ✓     | ✓     | ✓     |
| 6  | I2S_CONFIG         | 4.0.4   | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 7  | MULTICAN_CONFIG    | 4.0.10  | ✓     | ✓     | ✓     | ✓     |       |       |       |       | ✓     | ✓     | ✓     |
| 8  | PRNG_CONFIG        | 4.0.2   | -     | -     | -     | -     | ✓     | ✓     | ✓     | ✓     | -     | -     | -     |
| 9  | SPI_CONFIG         | 4.0.10  | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 10 | VADC_GLOBAL_CONFIG | 4.0.6   | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 11 | VADC_GROUP_CONFIG  | 4.0.6   | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |
| 12 | UART_CONFIG        | 4.0.8   | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     | ✓     |

Legend: \*\* indicates Beta version.

Note:

Beta means that these APPs may have not reached the full design status and should be used for evaluation and test purposes and for adaption in the development flow. A productive DAVE APP may not be fully compatible to the previous beta version and may require manual adaptations when upgrading from beta to productive release.

## 1.2 DAVE APPs Test conditions

- DAVE APPs for the XMC4800 series are verified on all supported derivatives, fully functional test is applied with XMC4800-F144x1024.
- DAVE APPs for the XMC4500 series are verified on all supported derivatives, fully functional test is applied with XMC4500-F144x1024.
- DAVE APPs for the XMC4400 series are verified on all supported derivatives, fully functional test is applied with XMC4400-F100x512.
- DAVE APPs for the XMC4200 series are verified on all supported derivatives; fully functional test is applied with XMC4200-Q48x256.
- DAVE APPs for the XMC1100 series are verified on all supported derivatives, fully functional test is applied with XMC1100-T038F0064.
- DAVE APPs for the XMC1200 series are verified on all supported derivatives, fully functional test is applied with XMC1200-T038F0200.
- DAVE APPs for the XMC1300 series are verified on all supported derivatives, fully functional test is applied with XMC1302-T038F0200.
- DAVE APPs for the XMC1400 series are verified on all supported derivatives, fully functional test is applied with XMC1404-Q064x0128.
  
- Compilers used :
  - KEIL: V5.10.0.2
  - IAR: V6.50.6.4958
  - GCC compiler version ARM-GCC-49

## **2 Support Packages**

None

### 3 Tool Information

|             |   |
|-------------|---|
| <b>DAVE</b> | We recommend to use DAVE v4.3.2 or higher version |
| <b>JAVA</b> | JRE8 v1.8.0 (JRE is bundled with DAVE)            |

#### **Important Note:**

This Update site of DAVE APPs, Device pack, Device Descriptions works with DAVE v4.1.4. This update site must not be used with DAVE v4.1.2.



## 4 Changes from Previous Version

### 4.1 Changes from previous version dated 2017-04-18 update site

- ❖ 11 DAVE APPs are update or enhanced

| No | DAVE APPs           | Update Description   |
|----|---------------------|--|
| 1  | CMSIS_RTOS_RTX      | 1. Fix: Documentation link to CMSIS RTOS RTX tutorial fixed.<br>2 Add: Export the following macros CMSIS_RTOS_RTX_TASKCNT, CMSIS_RTOS_RTX_PRIVCNT, CMSIS_RTOS_RTX_PRIVSTKSIZE, CMSIS_RTOS_RTX_TICK.                                  |
| 2  | COMP_REF            | Change: Comparator out is always visible independent of ERU being enabled or not.  |
| 3  | ETH_LWIP            | Change: Update lwip code base to v2.0.2<br>Update: stack size requirements<br>Add: ETH_LWIP_UserIRQ() to extend default IRQ handler by user  |
| 4  | FATFS               | Change: Update to FatFS R0.13  |
| 5  | GLOBAL_ADC          | Add: Selection of the reference voltage for conversions for XMC1 family  |
| 6  | HTTP_SERVER         | Add: Check for RTOS minimum requirements   |
| 7  | MOTOR_LIB           | Add: Support for XMC47/48/43 and XMC14   |
| 8  | PDM_DIMMED_LED_LAMP | 1. Fix: one clock glitch when using the Fast DCDC Buck with PDM mode by setting the modulation mode in the required CCU8_PWM APP to Clear The CC8yST<br>2. Fix: COMP_REF APP Inverter setting when using the Fast DCDC Buck with PDM |
| 9  | SDMMC_BLOCK         | Fix: SDMMC_BLOCK_SD_GetSectorCount() for Standard Capacity cards.  |
| 10 | VADC_GLOBAL_CONFIG  | Change: EMUX interface allow all groups to be selected   |
| 11 | VADC_GROUP_CONFIG   | Add: EMUX control  |

### 4.2 Changes from previous version dated 2017-03-17 update site

- ❖ 8 DAVE APPs are updated or enhanced

| No | DAVE APPs         | Update Description   |
|----|-------------------|--|
| 1  | CCU8_SLICE_CONFIG | 1. Add: Initial timer value in General Settings tab<br>2. Add: Timer Load selector for External Timer Load Functionality<br>3. Fix: Generate initialization of input events independently of whether they are used for any timer function<br>4. Add: Signal GPY output (visible for relevant devices e.g. XMC1400) |
| 2  | CCU4_SLICE_CONFIG | 1. Add: Initial timer value in General Settings tab<br>2. Fix: Generate initialization of input events independently of whether  |

|   |                 |   |
|---|-----------------|---|
|   |                 | they are used for any timer function<br>3. Add: Signal GPY output (visible for relevant devices e.g. XMC1400)   |
| 3 | CMSIS_DSP       | Upgrade: To Version 1.5.1 (see changelog at <a href="http://www.keil.com/pack/doc/CMSIS/DSP/html/ChangeLog_pg.html">http://www.keil.com/pack/doc/CMSIS/DSP/html/ChangeLog_pg.html</a> ) |
| 4 | GLOBAL_SCU_XMC1 | Fix: Typo in category description   |
| 5 | GLOBAL_SCU_XMC4 | Fix: Typo in category description   |
| 6 | ETH_LWIP        | 1. Fix: MEMCPY macro conflicts with ECAT_SSC<br>2. Change: Disable ETH interrupts while going through the descriptor list in ethernetif_input()   |
| 7 | ECAT_SSC        | Fix: TIMER APP not triggering ecat_ssc_timer_handler  |
| 8 | FREERTOS        | Fix: Missing MPU wrapper implemented<br>Add: Settings tab included  |

### 4.3 Changes from previous version dated 2016-09-26 update site

- ❖ 22 DAVE APPs updated or enhanced

| No | DAVE APPs         | Update Description   |
|----|-------------------|--|
| 1  | CAN_NODE          | Add: support for XMC1403_Q040  |
| 2  | CCU8_SLICE_CONFIG | Fix: channel output inversion control.   |
| 3  | CMSIS_DSP         | Upgrade to Version 1.5.1   |
| 4  | CMSIS_RTOS_RTX    | Upgrade to v4.82 of CMSIS RTOS RTX:<br>1. Fix: Recursive Mutex 16-bit lock counter is now checked to not overflow.<br>2. Fix: Message Queue behavior when osMessagePut timed out due to full queue and osMessageGet was called from ISR. |
| 5  | CPU_CTRL_XMC1     | Fix: compilation warnings.   |
| 6  | CPU_CTRL_XMC4     | Change: hard fault handler to avoid reading from the stack in case an stack overflow caused the fault.   |
| 7  | COMP_REF          | Fix: assignment of reference source when BCCU is not present.  |
| 8  | ECAT_SSC          | 1. Fix: initialization of EEPROM data taking into account size of EEPROM specified in SSC tool.<br>2. Fix: MDIO input multiplexer setting.   |
| 9  | ETH_LWIP          | 1. Add Enable LWIP_PLATFORM_BYTESWAP<br>2. Upgrade: lwIP 2.0.1   |
| 10 | E_EEPROM_XMC4     | Remove: casting from size macros   |
| 11 | GLOBAL_CAN        | Add: XMC1403_Q040 support  |
| 12 | HTTP_SERVER       | 1. Add: option to not send the SSI tag<br>2. Change: Make post_buffer word aligned in HTTP_SERVER_POST_RESP_t  |
| 13 | I2C_MASTER        | Fix: unintended interrupts, while filling FIFO, by clearing pending interrupts   |
| 14 | MULTICAN_CONFIG   | 1. Add: support for XMC1403_Q040<br>2. Fix: lower limit of message object identifier value   |

|    |             |   |
|----|-------------|---|
| 15 | PWM_CCU4    | 1. Change: PWM_CCU4_Stop() to set the ST output to the passive value after stopping the timer.<br>2. Fix: Max frequency set to fCCU4/4  |
| 16 | PWM_CCU8    | 1. Change: PWM_CCU8_Stop() to set the ST output to the passive value after stopping the timer.<br>2. Fix: Max frequency set to fCCU8/4  |
| 17 | PMSM_FOC    | Add: support for XMC14 and XMC43/47/48  |
| 18 | PWM_SVM     | 1. Add: support for XMC47/48/43<br>2. Fix: include statement to use forward slashes   |
| 19 | SDMMC_BLOCK | Fix: card detection issues when SD CD pin is used for other purposes.   |
| 20 | SPI_MASTER  | Fix: Correction of issues when using FIFO and high baudrates by setting FIFO limit to half of the FIFO size   |
| 21 | SYSTIMER    | Added: SYSTIMER_CreateTimerFromISR(), SYSTIMER_StartTimerFromISR(), SYSTIMER_StopTimerFromISR(), SYSTIMER_RestartTimerFromISR(), SYSTIMER_DeleteTimerFromISR(), SYSTIMER_Start(), SYSTIMER_Stop() |
| 22 | UART        | 1. Add option to invert input/output data<br>2. Add option to select the LSB or MSB first output  |

Correction of typo in this release note: wrong version info of I2S\_CONFIG correct to v4.0.4

#### 4.4 Changes from previous version dated 2016-09-02 update site

❖ 2 APPs enhanced/updated:

| No | DAVE APPs       | Update Description   |
|----|-----------------|--|
| 1  | MULTICAN_CONFIG | 1. Fixed code generation issue for multiple message objects in multican_config_conf.c file, with respect to XMC_CAN_MO_Config() API.<br>2. Help doc updated with a new example, which explains the usage of slave message objects using hardware FIFO. |
| 2  | E_EEPROM_XMC1   | Fixed issue in APP device migration.<br>UI and configuration header file will have the correct bank1 flash end address after migration to a different flash size device.   |

#### 4.5 Changes from previous version dated 2016-04-28 update site

##### Added:

- ❖ 4 new APPs added:

CAPTURE, I2S\_CONFIG, VADC\_GROUP\_CONFIG & VADC\_GLOBAL\_CONFIG

| No | DAVE APPs          | APPs Description  |
|----|--------------------|---|
| 1  | CAPTURE            | Performs signal analysis to find out duty cycle & period of unknown input signal                                      |
| 2  | I2S_CONFIG         | Configures USIC peripheral to function as I2S master or slave device  |
| 3  | VADC_GROUP_CONFIG  | Versatile Analog to Digital Convertor peripheral configuration APP. Supports configuration of VADC group properties.  |
| 4  | VADC_GLOBAL_CONFIG | Versatile Analog to Digital Convertor peripheral configuration APP. Supports configuration of VADC global properties. |

##### Updated:

- ❖ 9 APPs upgraded from Beta to Productive:

ACIM\_FREQ\_CTRL, AUTOMATION, GLOBAL\_POSIF, MOTOR\_LIB, PMSM\_FOC, PWM\_BC, PWM\_SVM, CCU4\_SLICE\_CONFIG, CCU8\_SLICE\_CONFIG

| No | DAVE APPs  | APPs Description   |
|----|--|--|
| 1  | ACIM_FREQ_CTRL<br>AUTOMATION<br>GLOBAL_POSIF<br>MOTOR_LIB<br>PMSM_FOC<br>PWM_BC<br>PWM_SVM | All 7 APPS upgraded from Beta to productive without any functional changes. Fully compatible to existing beta versions.  |
| 2  | CCU4_SLICE_CONFIG  | APP upgraded to productive with major changes. Not compatible with existing beta versions.<br>Changes: <ol style="list-style-type: none"> <li>1. User interface of the APP changed to new format. Added and deleted elements for functional improvements.</li> <li>2. Concatenation signal connections are supported.</li> </ol> |
| 3  | CCU8_SLICE_CONFIG  | APP upgraded to productive with major changes. Not compatible with existing beta versions.<br>Changes: <ol style="list-style-type: none"> <li>1. User interface of the APP changed to new format. Added and deleted elements for functional improvements.</li> <li>2. Concatenation signal connections are supported.</li> </ol> |

## ❖ 46 APPs enhanced/updated:

| DAVE APPs           | Update Description  |
|---------------------|---|
| ADC_MEASUREMENT     | Fixed: <ol style="list-style-type: none"> <li>1. Minimum sampling time for XMC1000 is restricted to be greater than 4 times SHS conversion time period, as per Errata ADC_AI.H007. Default sampling time changed from 100 to 125 nanoseconds in "Desired sampling time" UI element.</li> <li>2. Total conversion time for XMC1000 devices is constrained to the frequency selection in GLOBAL_ADC APP. For lower CPU clock frequencies ((fmclk=fadc) &lt; fsh), the convertor clock (fconv) is downsized using DIVS in GLOBAL_ADC APP to achieve lower SHS clock (fsh). This is done to qualify the hardware Errata ADC_AI.H006.</li> </ol>   |
| ADC_MEASUREMENT_ADV | Added: <ol style="list-style-type: none"> <li>1. Synchronous conversion of ADC channels supported.</li> </ol> Fixed: <ol style="list-style-type: none"> <li>1. Minimum sampling time for XMC1000 is restricted to be greater than 4 times SHS conversion time period, as per Errata ADC_AI.H007. Default sampling time changed from 100 to 125 nanoseconds in "Desired sampling time" UI element.</li> <li>2. Total conversion time for XMC1000 devices is constrained to the frequency selection in GLOBAL_ADC APP. For lower CPU clock frequencies ((fmclk=fadc) &lt; fsh), the convertor clock (fconv) is downsized using DIVS in GLOBAL_ADC APP to achieve lower SHS clock (fsh). This is done to qualify the hardware Errata ADC_AI.H006.</li> </ol> |
| ADC_QUEUE           | Fixed: <ol style="list-style-type: none"> <li>1. Minimum sampling time for XMC1000 is restricted to be greater than 4 times SHS conversion time period, as per Errata ADC_AI.H007. Default sampling time changed from 100 to 125 nanoseconds in "Desired sampling time" UI element.</li> <li>2. Total conversion time for XMC1000 devices is constrained to the frequency selection in GLOBAL_ADC APP. For lower CPU clock frequencies ((fmclk=fadc) &lt; fsh), the convertor clock (fconv) is downsized using DIVS in GLOBAL_ADC APP to achieve lower SHS clock (fsh). This is done to qualify the hardware Errata ADC_AI.H006.</li> </ol>   |
| ADC_SCAN            | Fixed: <ol style="list-style-type: none"> <li>1. Minimum sampling time for XMC1000 is restricted to be greater than 4 times SHS conversion time period, as per Errata ADC_AI.H007. Default sampling time changed from 100 to 125 nanoseconds in "Desired sampling time" UI element.</li> <li>2. Total conversion time for XMC1000 devices is constrained to the frequency selection in GLOBAL_ADC APP. For lower CPU clock frequencies ((fmclk=fadc) &lt; fsh), the convertor clock (fconv) is downsized using DIVS in GLOBAL_ADC APP to achieve lower SHS clock (fsh). This is done to qualify the hardware Errata ADC_AI.H006.</li> </ol>   |
| ANALOG_IO           | Fixed incorrect case for "Dave_common.h" included header file in the  |

|                |  |
|----------------|--|
|                | Linux development environment.   |
| CAN_NODE       | Added: CAN_NODE_MO_UpdateID() API to update the message object identifier.   |
| CLOCK_XMC1     | Fixed incorrect case for "Dave_common.h" included header file in the Linux development environment.  |
| CLOCK_XMC4     | Fixed incorrect case for "Dave_common.h" included header file in the Linux development environment.  |
| CMSIS_RTOS_RTX | <ol style="list-style-type: none"> <li>1, Fixed: Rename ENABLE_CPU_CM_001_WORKAROUND to ENABLE_PMU_CM_001_WORKAROUND</li> <li>2. Updated Help documentation overview page to state the version used v4.80.</li> <li>3. Fixed incorrect case for "Dave_common.h" included header file.</li> </ol> |
| CONTROL_LIB    | <ol style="list-style-type: none"> <li>1. Added: APIs for Square root, Moving Average filter and PI controller.</li> <li>2. Fixed: Scaling calculation for "output" variable in corrected in CONTROL_LIB_2P2ZFixedPointInit(), CONTROL_LIB_3P3ZFixedPointInit() APIs.</li> </ol>                 |
| COUNTER        | All event signal connections made mandatory when enabled. User need to connect them to targeted interrupt node.  |
| DAC            | Fixed incorrect case for "Dave_common.h" included header file in the Linux development environment.  |
| DIGITAL_IO     | Fixed incorrect case for "Dave_common.h" included header file in the Linux development environment.  |
| DIM_BCCU       | Added support for XMC1400 new device packages  |
| DISPLAY_7SEG   | Added support for XMC1400 new device packages  |
| DMX512_RD      | Fixed incorrect case for "Dave_common.h" included header file in the Linux development environment.  |
| E_EEPROM_XMC1  | Fixed incorrect case for "Dave_common.h" included header file in the Linux development environment.  |
| E_EEPROM_XMC4  | <ol style="list-style-type: none"> <li>1. Fixed code generation error for project folder paths with spaces in between.</li> <li>2. Fixed incorrect case for "Dave_common.h" included header file in the Linux development environment.</li> </ol>  |
| ECAT_SSC       | Fixed incorrect case for "Dave_common.h" included header file in the Linux development environment.  |
| ETH_LWIP       | <ol style="list-style-type: none"> <li>1. Added: Feature to check PHY initialization error<br/>Added: Task configuration widgets in UI<br/>Added: Added UI option to use polling</li> <li>2. Updated: Optimized by removing excess memory copy.</li> </ol>                                       |
| FATFS          | Added: Display for SDMMC_BLOCK APP instance name for used card volumes in GUI.   |
| FREERTOS       | Updated: Upgraded to new FREERTOS version V9.0.0   |
| GLOBAL_ADC     | Fixed: <ol style="list-style-type: none"> <li>1. ADC convertor clock frequency (fconv) is maintained to be equal to Main CPU clock (fmclk=fadc) for lesser frequencies. DIVS</li> </ol>  |

|                     |   |
|---------------------|---|
|                     | <p>divider configuration introduced to control convertor clock according to hardware errata ADC_AI.H006. This avoids conversion results overwriting issue at lower clock frequencies.</p> <p>2. Fixed incorrect case for "Dave_common.h" included header file in the Linux development environment.</p> |
| GLOBAL_BCCU         | Fixed incorrect case for "Dave_common.h" included header file in the Linux development environment.   |
| GLOBAL_CAN          | <p>1. Fixed: Baud rate clock source restricts selecting High Precision OSC, if not selected in the used CLOCK APP.</p> <p>2. Updated: APP GUI Improved with relevant widget Names and its placement</p>   |
| GLOBAL_LEDTS        | Added support for XMC1400 new device packages   |
| HRPWM               | Updated: All event signal connections made mandatory when enabled.  |
| HTTP_SERVER         | <p>1. Updated: Improvement in template my making RTOS and non RTOS based code common.</p> <p>2. Fixed: Fixed errors for large file load.</p>  |
| I2C_CONFIG          | <p>1. Updated: Now code for mapping events is always generated for the visible signals.</p> <p>2. Fixed: Redundant code generation for external clock configuration corrected.</p>  |
| I2C_MASTER          | <p>1. Updated: Pad signals are exposed to user for external connection with other APPs.</p> <p>2. Updated: Documentation of DMA and interrupt functions added in the help document.</p>   |
| I2C_SLAVE           | <p>1. Fixed: incorrect case for "Dave_common.h" included header file.</p> <p>2. Added: Clock stretch functionality support. Pad signals are exposed to user for external connection with other APPs.</p>  |
| LED_MATRIX          | <p>Added support for XMC1400 new device packages</p> <p>Fixed incorrect case for "Dave_common.h" included header file in the Linux development environment.</p>   |
| LEDTS_COL_CTRL      | Added support for XMC1400 new device packages   |
| LEDTS_COLA_CTRL     | Added support for XMC1400 new device packages   |
| MANCHESTER_SW       | <p>Enhanced:</p> <ul style="list-style-type: none"> <li>Decoder functionality validates the received bit-stream against stop bits validation.</li> <li>Provides the user interface for number of stop bits selection in GUI.</li> </ul>   |
| MULTICAN_CONFIG     | Updated: Code for mapping events is always generated for the visible signals.   |
| PDM_BCCU            | Added support for XMC1400 new device packages   |
| PDM_DIMMED_LED_LAMP | <p>Added support for XMC1400 new device packages</p> <p>Fixed incorrect case for "Dave_common.h" included header file in the Linux development environment.</p>   |
| PWM                 | Updated: All event signal connections made mandatory when enabled. User need to connect them to targeted interrupt node.  |
| PWM_CCU4            | Updated: All event signal connections made mandatory when enabled. User need to connect them to targeted interrupt node.  |

|             |   |
|-------------|---|
| PWM_CCU8    | Updated: All event signal connections made mandatory when enabled. User need to connect them to targeted interrupt node.  |
| RTC         | Added: New APIs to set and get time and alarm in standard time format (RTC_SetStdTime(), RTC_GetStdTime).   |
| SDMMC_BLOCK | <ol style="list-style-type: none"> <li>Fixed: Null pointer generation for SD host in the configuration is fixed for XMC4300 device. Interrupt signal in SD Mode is mapped.</li> <li>Fixed: Timeout mechanism added in SDMMC_BLOCK_SD_ICheckDataCommandLines API to support low speed SD cards.</li> </ol> |
| SPI_CONFIG  | Updated: GUI image updated for baud rate generator.   |
| SPI_MASTER  | Fixed: Transmit data buffer index not updated properly while transmitting data in direct mode.  |
| SPI_SLAVE   | Updated: Pad signals are exposed to user for external connection with other APPs.   |
| SYSTIMER    | Fixed: Reentrancy issue when using SYSTIMER_StopTimer   |
| TIMER       | Updated: Timer event signal connection made mandatory when enabled. User need to connect them to targeted interrupt node.   |
| UART        | Updated: Pad signals are exposed to user for external connection with other APPs.   |

#### 4.6 Changes from previous version dated 2016-02-15 update site

##### Added:

- ❖ 4 new APPs added: HTTP\_SERVER, FTP\_SERVER, BUS\_IO and PIN\_INTERRUPT.
- ❖ 2 APPs are transferred from contributed APPs to official Infineon Developed APPs

| No | DAVE APPs       | APPs Description  |
|----|-----------------|---|
| 1  | HTTP_SERVER     | HTTP server is used to store, process and deliver web pages to clients using Ethernet interface.                          |
| 2  | FTP_SERVER      | File Transfer Protocol (FTP) is a network protocol used to exchange and manipulate files over a TCP/IP-based network.     |
| 3  | BUS_IO          | BUS_IO APP is used to configure/control several GPIO pins as one entity.  |
| 4  | PIN_INTERRUPT   | The PIN_INTERRUPT APP invokes user interrupt handler in a response into rising and/or falling edge event signal on a pin. |
| 5  | I2C_CONFIG      | Configures a USIC channel as a master/slave to perform transmit & receive operations using the I2C protocol               |
| 6  | MULTICAN_CONFIG | Configures MultiCAN peripheral  |

##### Updated:

- ❖ 3 APPs upgraded from Beta to Productive: ADC\_MESUREMENT\_ADV, SDMMC\_BLOCK and FATFS.
- ❖ 30 APPs enhanced/updated:

| DAVE APPs | Update Description |
|-----------|--------------------|
|-----------|--------------------|



|                     |  |
|---------------------|--|
| ADC_MEASUREMENT     | <ol style="list-style-type: none"> <li>1. Maximum number of channels for XMC41/42 increased to 9.</li> <li>2. Added Post calibration time for XMC1x series in Total conversion Time.</li> <li>3. Fixed the ADC_MEASUREMENT_Init () for ANALOG_IO initialization.</li> <li>4. For XMC1100 series only: Deprecated the API ADC_MEASUREMENT_GetResult () and ADC_MEASUREMENT_GetDetailedResult ().</li> <li>5. For XMC1100 series only: Added new API ADC_MEASUREMENT_GetGlobalResult () and ADC_MEASUREMENT_GetGlobalDetailedResult ().</li> <li>6. Tooltip added for Enable Continuous Conversion checkbox</li> </ol> |
| ADC_MEASUREMENT_ADV | <ol style="list-style-type: none"> <li>1. Added consumption of the GLOBAL_ICLASS-1 for Sync. Conversions.</li> <li>2. Added consumption of the result register-0 for subtraction mode.</li> <li>3. Removed ADC_MEASUREMENT_ADV_SetUniformConversion ().</li> <li>4. New API ADC_MEASUREMENT_ADV_SetIclass () added to configure the GLOBAL_ICLASS for Slaves.</li> <li>5. Queue use case issue with -03 optimization fixed.</li> <li>6. Upgraded from Beta to Productive release</li> </ol>  |
| ADC_QUEUE           | Total conversion time now includes post calibration time as well for XMC1x.  |
| ADC_SCAN            | Total conversion time now includes post calibration time as well for XMC1x.  |
| CCU4_SLICE_CONFIG   | Missing code generation for external event configuration is fixed.   |
| CCU8_SLICE_CONFIG   | Missing code generation for external event configuration is fixed.   |
| CMSIS_DSP           | Help doc updated for CMSIS version , License info is updated   |
| CMSIS_RTOS_RTX      | Help doc updated for CMSIS version, License info is updated  |
| CMSIS_RTOS          | Help doc updated.  |
| DAC_SWEEP           | Maximum value of desired start frequency in the GUI is limited to one count lesser than Maximum value of stop frequency.   |
| DIGITAL_IO          | Corrected wrong generation of structure object for pins with default hardware peripheral connection.   |
| DS_ADC_DEMOD        | Content pane is corrected in app help documentation.   |
| ECAT_SSC            | Updated APP help documentation: Added note in usage section for exporting ECAT APP to Keil using gpdsc.  |
| EEPROM_XMC4         | Linker files updated for missing ALIGN statements for BSS sections. Fix size of BSS and DATA sections to be multiple of 4.   |
| ETH_LWIP            | <ol style="list-style-type: none"> <li>1.Increased data transfer performance by using optimized assembly code for data copy</li> <li>2.Semaphore creation wrapper to initialize the object corrected</li> <li>3.Mac address in GUI display changed from decimal to hex format.</li> </ol>  |
| FATFS               | Upgraded from Beta to Productive release   |
| FREERTOS            | Update to FreeRTOS v8.2.3 Fix initialization of configKERNEL_INTERRUPT_PRIORITY Fix initialization of configMAX_SYSCALL_INTERRUPT_PRIORITY, License info is updated  |
| GLOBAL_ACMF         | Content pane is corrected in app help documentation.   |
| GLOBAL_ADC          | Modified the minimum configurable value for Desired analog clock in XMC1x to 1MHz.   |
| GUI_SEGGERLIBRARY   | License info is updated  |
| HRPWM               | Trap enable configuration is corrected in HRPWM_IConfigure_Events() API  |
| I2C_MASTER          | Added multiplexer settings for DX3, DX4 and DX5 for XMC1x family   |

|             |  |
|-------------|--|
| I2C_SLAVE   | Documentation updated  |
| PWM_CC4     | UI frame width is increased. This avoids left, right arrows for tabs   |
| PWM_CC8     | UI frame width is increased. This avoids left, right arrows for tabs<br>Trap enable configuration is corrected in PWM_CC8_IConfigure_Events() API  |
| SDMMC_BLOCK | 1. Added RTOS functionality<br>2. Upgraded from Beta to Productive release   |
| SPI_CONFIG  | Data lost event signal removed and a checkbox added in Events tab  |
| SPI_MASTER  | 1. Improve the performance during the higher baud rates by removing the memcpy () and added new LLD API calls.<br>2. Quad mode support is enabled for XMC14 devices.<br>3. Help doc improved for handling of the last byte in the shift register.<br>4. For XMC4000 devices, pad class is constrained based on the bus speed selected. |
| UART        | Added support for transmit port pad class change based on speed.<br>Added APIs UART_IsTxBusy () and UART_IsRxBusy ().  |
| UART_CONFIG | Changed data lost event from signal to a checkbox in Events tab  |

## 4.7 Changes from previous version dated 2015-11-27 Update site

Due to the enhancements in the CLOCK\_XMC4 APP (See the details in “Enhanced” section), we recommend to use the new version of the CLOCK\_XMC APP along with the new version of all other APPs requiring CLOCK APP (GLOBAL\_CCU, GLOBAL\_CCU8, GLOBAL\_POSIF, GLOBAL\_HRPWM, WATCHDOG, USB).

| Category       | Description of change   |
|----------------|---|
| Device Support | 54 APPs supported for XMC4300 devices   |
| New            | <p>8 New APPs added:</p> <p>FCE_CONFIG, PRNG_CONFIG, ETH_LWIP, SDMMC_BLOCK**, ECAT_SSC, E_EEPROM_XMC4, FATFS**, CONTROL_LIB</p> <p>4 APPs transferred from contributed APPs to Infineon developed APPs</p> <p>SPI_CONFIG (name was USIC_CONFIG_SPI)<br/>           UART_CONFIG (name was USIC_CONFIG_UART)<br/>           CCU4_SLICE_CONFIG** (name was CCU4_CONFIG)<br/>           CCU8_SLICE_CONFIG** (name was CCU8_CONFIG)</p>  |
| Enhanced       | <p>1. ADC_MEASUREMENT_ADV:</p> <ul style="list-style-type: none"> <li>• Internal consumption of the SCAN and QUEUE request sources supported (Expose APP feature).</li> <li>• Number of maximum sync masters reduced from 8 to 4</li> <li>• Converted the SetBoundary() API from public API to private API.</li> <li>• Converted the SetBoundary() API from public API to private API.</li> <li>• Re-named the API ADC_MEASUREMENT_ADV_StartConversion() as ADC_MEASUREMENT_ADV_SoftwareTrigger().</li> <li>• Created a new API ADC_MEASUREMENT_ADV_StartADC().</li> <li>• UI “Insert channel at initialization” changed to “Start ADC at initialization” .This would control the ADC arbitration not insertion in the hardware.</li> <li>• Removed the API ADC_MEASUREMENT_ADV_InsertChannels() API.</li> <li>• This APP is not compatible to version 4.0.1, in case migration functionality is used to migrate v4.0.1 to this version manual interactions are required</li> </ul> <p>2. ADC_QUEUE:</p> <ul style="list-style-type: none"> <li>○ Added new APIs ADC_QUEUE_DisableArbitration() and ADC_QUEUE_EnableArbitration().</li> <li>○ Optimized the internal data structure hence the following APIs have been optimized.               <ul style="list-style-type: none"> <li>▪ ADC_QUEUE_ReqSrcEventHandler().</li> <li>▪ ADC_QUEUE_InsertQueueEntry().</li> <li>▪ ADC_QUEUE_ResetListContents().</li> </ul> </li> </ul> <p>3. ADC_SCAN:</p> <ul style="list-style-type: none"> <li>○ Added new APIs ADC_SCAN_DisableArbitration() and ADC_SCAN_EnableArbitration().</li> <li>○ Optimized the internal data structure hence the following APIs have been optimized.               <ul style="list-style-type: none"> <li>▪ ADC_SCAN_ReqSrcEventHandler().</li> <li>▪ ADC_SCAN_InsertQueueEntry().</li> <li>▪ ADC_SCAN_ResetListContents().</li> </ul> </li> </ul> |

4. ADC\_MEASUREMENT:
  - Added ANALOG\_IO\_Init function call inside ADC APP Init function to support new enhancements in ANALOG\_IO APP (HW PULL controlled IO and Digital input option options).
5. ANALOG\_IO:
  - Hardware Pull controlled feature support added for analog pins.
  - Digital input mode support for analog IO pins added.
6. WATCHDOG:
  - Pre-warning alarm event can be promoted as NMI for XMC4000 devices
7. RTC:
  - RTC events can be promoted as NMI for XMC4000 devices.
8. COMP\_REF:
  - Supported internal filter option.
  - Changes in ANALOG\_IO APP for Digital input support and HW pull control are supported.
  - SD file is updated to make the Inn, Inp, ERU\_out and Comp\_out signals visible.
  - Initializations in COMP\_REF\_Init() are moved to local functions.
  - GPIO pin configurations are corrected for XMC1400.
9. HRPWM:
  - “CCU8 Compare 2” register is made available for modification in all operating modes.
10. BUCK\_PCC\_FIX\_FQ:
  - Supported for XMC1x devices.
  - APP uses CONTROL\_LIB APP in place of POWER\_CONV\_LIB APP.
  - Dynamic scaling algorithm implemented for XMC1x device.
  - Control Settings tab UI is modified.
  - APP handle structure is modified.
  - PI compensator support is removed.
  - Vout reference voltage is now in steps of ADC voltage.
  - Check is added to detect invalid strings in UI.
11. BUCK\_VC\_FIX\_FQ:
  - PI compensator support is removed.
  - Vout reference voltage is now in steps of ADC voltage.
  - APP uses CONTROL\_LIB APP in place of POWER\_CONV\_LIB APP.
  - PWM\_CCU4 APP support is removed.
  - Dynamic scaling algorithm implemented for XMC1x device.
  - Control Settings tab UI is modified.
  - APP handle structure is modified.
  - Check is added to detect invalid strings in UI.
12. COMP\_SLOPE\_GEN:
  - Added images for comparator output waveform when comparator inversion is selected.
13. DAC / DAC\_LUT / DAC\_SWEEP:

|               |  |
|---------------|--|
|               | <ul style="list-style-type: none"> <li>• Added ANALOG_IO_Init function call inside DAC APPs Init function to support new enhancements in ANALOG_IO APP (HW PULL controlled IO and Digital input option options).</li> </ul> <p>14. ACMP_CONFIG:</p> <ul style="list-style-type: none"> <li>• Moved Initialization functionality to Instance specific Initialization functions for code size optimizations. Removed unwanted APP handle structure elements.</li> </ul> <p>15. DIGITAL_IO:</p> <ul style="list-style-type: none"> <li>• Added Hardware Port Control signal for changing the direction of the pin from other peripherals (Example: USIC peripheral controlling port direction control).</li> </ul> <p>16. CLOCK_XMC4:</p> <ul style="list-style-type: none"> <li>• Clock Enable/Disable feature is supported for CCU, WATCHDOG, USB, EtherCAT peripherals.</li> </ul> <p>17. GLOBAL_CCU4:</p> <ul style="list-style-type: none"> <li>• New condition is added to check if CCU clock is enabled in the CLOCK_XMC4 APP.</li> </ul> <p>18. GLOBAL_CCU8:</p> <ul style="list-style-type: none"> <li>• New condition is added to check if CCU clock is enabled in the CLOCK_XMC4 APP.</li> </ul> <p>19. GLOBAL_POSIF:</p> <ul style="list-style-type: none"> <li>• New condition is added to check if CCU clock is enabled in the CLOCK_XMC4 APP.</li> </ul> <p>20. WATCHDOG:</p> <ul style="list-style-type: none"> <li>• New condition is added to check if WATCHDOG clock is enabled in the CLOCK_XMC4 APP.</li> </ul> <p>21. USB:</p> <ul style="list-style-type: none"> <li>• New condition is added to check if USB clock is enabled in the CLOCK_XMC4 APP.</li> </ul> <p>22. GLOBAL_HRPWM:</p> <ul style="list-style-type: none"> <li>• New condition is added to check if CCU clock is enabled in the CLOCK_XMC4 APP.</li> </ul> |
| Fix of Issues | <ol style="list-style-type: none"> <li>1. CRC_SW:       <ul style="list-style-type: none"> <li>• Acceptance of initial value is allowed only with 0x00 or 0xFF</li> </ul> </li> <li>2. CLOCK_XMC4:       <ul style="list-style-type: none"> <li>• Removed clear trap status settings at the end of the clock initialization which was redundant code.</li> <li>• Validation message issue is resolved when the CLOCK_XMC4 APP is dragged for XMC4504-F144 Device.</li> <li>• CLOCK_XMC4 APP upgradation failure issue is resolved.</li> <li>• TRAP disable and clear request code has removed from SystemCoreClockSetup() API and ensured first cleaning of pending traps before enabling TRAPS as per guideline of interrupts.</li> <li>• Code generation has blocked when fUSB/SDMMC not equal to 48 MHz and fECAT not equal to 100 MHz.</li> </ul> </li> <li>3. DISPLAY_7SEG:       <ul style="list-style-type: none"> <li>• Added template code checks for resource availability of column A instead of GUI field.</li> </ul> </li> </ol>  |
| Upgraded      | <p>6 APPs upgraded from Beta to PR quality:</p> <p>ACMP_CONFIG, BUCK_VC_FIX_FQ, BUCK_PCC_FIX_FQ, GLOBAL_DSD, DS_ADC_DEMOD</p>  |

|         |   |
|---------|---|
| Removed | LED_LAMP: Removed from the Update site. It has been deprecated in the 2015-10-30 Update site. |
|---------|---|

#### 4.8 Changes from previous version dated 2015-10-30 Update site

| Category | Description of change        |
|----------|------------------------------|
| New      | 1 New APP added: PMSM_FOC**. |

#### 4.9 Changes from previous version dated 2015-07-23 Update site

| Category | Description of change  |
|----------|--|
| New      | 6 New APPs are added: ADC_MEASUREMENT_ADV, BUCK_PCC_FIX_FQ, DS_ADC_DEMOD, GLOBAL_DSD, SPI_SLAVE, I2C_SLAVE   |
| Renamed  | 2 APPs enhanced and renamed: LED_LAMP → PDM_DIMMED_LED_LAMP, BUCK_VOLT_CONTROL → BUCK_VC_FIX_FQ; older APPs are deprecated.  |
| Upgraded | 3 APPs upgraded from Beta to PR quality: COMP_REF, COMP_SLOP_GEN & DAC_SWEEP.  |
| Enhanced | <ol style="list-style-type: none"> <li>1. USIC APPs (I2C_MASTER, SPI_MASTER, and UART) are supported with DMA and Direct mode of transfer.</li> <li>2. GUI_SEGGERLIBRARY APP is enhanced for OS support.<br/>(No compatibility break)<br/>INTERRUPT APP (Added a warning message in UI if the node is not connected to any of the peripheral) (No compatibility break)</li> <li>3. CPU_CTRL_XMC4 enhanced with debug settings and MPU settings.<br/>(No compatibility break)</li> <li>4. PWM_CCU8 APP           <ul style="list-style-type: none"> <li>• Added support for sig-Is gp0/1/2 and ps.</li> <li>• Added support for selection of channel in exter-I load function</li> <li>• Added support for selection of shadow transfer mode</li> </ul> </li> <li>5. PWM_CCU4 APP           <ul style="list-style-type: none"> <li>• Added support for sig-Is gp0/1/2 and ps.</li> <li>• Added support for selection of shadow transfer mode</li> </ul> </li> <li>6. PDM_DIMMED_LED_LAMP:           <ul style="list-style-type: none"> <li>• Added support for peak current control feature</li> <li>• Added new modes drivers of DCDC buck: Fast, Simple, Slow</li> </ul> </li> <li>7. CLOCK_XMC1:           <ul style="list-style-type: none"> <li>• Added support for event settings in UI</li> <li>• Added support for run-time clock changes</li> </ul> </li> <li>8. CLOCK_XMC4:           <ul style="list-style-type: none"> <li>• Added support for event settings in UI</li> <li>• Added support for run-time clock changes</li> </ul> </li> <li>9. CMSIS_RTOS_RTX:           <ul style="list-style-type: none"> <li>• Ported to CMSIS-RTOS RTX (v4.79) library.</li> </ul> </li> </ol> |

|                  |  |
|------------------|--|
| Fix of Issues    | <ol style="list-style-type: none"> <li>1. ADC_MEASUREMENT APP UI and help documentation updated for "Total conversion time".<br/>APP help documentation Architecture section updated for A-LOG_IO sharing (alias feature) and result register explanation.</li> <li>2. ADC_QUEUE, ADC_SCAN, GLOBAL_ADC APPs, desired sampling corrected for XMC4200/XMC4100 devices (By default 26 MHz).</li> <li>3. SYSTIMER UI parameter "Systick time period" tooltip updated.<br/>SYSTIMER_CreateTimer API updated for wrong time period check.</li> <li>4. PWM_CCU4 in "External Event Settings" tab corrected the code generated for "External Gating/ External Modulation" for "Active on High Level" and "Active On Low Level" selection.<br/>Corrected code generated for "External Override (Event 2)" for "Inversion" and "No Inversion" selection.</li> <li>5. CLOCK_XMC4: Fix on exter-I direct input mode</li> <li>6. SPI_MASTER: Fix on runt-time operation mode change.</li> </ol> |
| XMC47/48 support | 53 APPs are added support for XMC47/48 devices   |
| XMC14 support    | 53 APPs are added support for XMC14 devices  |

#### 4.10 Changes from previous version dated 2015-02-27 Update site

| Sl.no | Description of change  |
|-------|--|
| 1     | 8 New APPs are added – ACMP_CONFIG **, COMP_REF, COMP_SLOP_GEN, CMSIS_RTOS_RTX, CMSIS_DSP, DAC_SWEEP **, FREERTOS and GLOBAL_ACMP. |
| 2     | 4 APPs removed – BLDC_SCALAR_CTRL, HALL_POSIF, PMSM_FOC, PMSM_SCALAR_CTRL  |
| 3     | 1 APP merged – GUI_LCD APP is merged to GUI_SEGGERLIBRARY  |
| 4     | 52 APPs release status changed from Beta to Productive.  |

## 5 Installation Requirements

- DAVE v4.1.4 or higher must be installed.
- We recommend using DAVE v4.3.2 or higher version.

### **Important Note:**

This Update site of DAVE APPs, Device pack, Device Descriptions works with DAVE v4.1.4 or higher version. This update site must not be used with DAVE v4.1.2.



## 6 Known Limitations

| DAVE APPs            | Limitation / Deviation  |
|----------------------|---|
| SDMMC_BLOCK          | MMC Cards are not supported.  |
| CLOCK_XMC4           | Functionality cannot be achieved for all the range values of external clock frequency (4- 25 MHz) which makes actual fSYS to cross upper threshold value.   |
| ADC_MEASUREMENT      | It might not be possible to achieve the MAX value for “Number of measurements” as shown in the UI of the APP. The available channels depend on the device that is selected.   |
| ADC_MEASUREMENT_ADV  | <ol style="list-style-type: none"> <li>1. It might not be possible to achieve the MAX value for “Number of measurements” as shown in the UI of the APP. The available channels depend on the device that is selected.</li> <li>2. Channel events are only supported for boundary channels, hence is limited to maximum 4</li> <li>3. Using this APP, a reduced performance of DAVE may be observed (reaction time of UI and Solver run).</li> </ol> |
| DAC_LUT              | On XMC4400, XMC4200/XMC4100 devices, Auto interrupt and Manual software refill with synchronize second DAC option is not supported.   |
| PMSM_FOC             | <ol style="list-style-type: none"> <li>1. Supports only GCC compiler, not validated with other compilers.</li> <li>2. Only single instance of the APP can be used as this APP is wrapper of library code, which doesn't support hardware resource handling by itself.</li> <li>3. PMSM_FOC APP and DAC APPs cannot be used together in DAVE due to solver limitation</li> </ol>   |
| PWM                  | <p>Since PWM_SetFreq API allows setting the PWM frequency to the full allowable range by automatically adjusting the pre-scaler, a one cycle deviation persists after the change gets into action.</p> <p>When a new frequency requires a change in pre-scaler value, there will be a single cycle (1 pulse), where the ON/OFF time is different from the expected values.</p>  |
| PWM_CCU4             | <ol style="list-style-type: none"> <li>1. Shadow transfer setting tab support is limited to XMC14xx devices</li> <li>2. Shadow transfer setting tab, immediate write and automatic shadow transfer feature support is limited to XMC14xx devices</li> <li>3. In XMC1400, Shadow transfer setting tab, immediate write and automatic shadow transfer feature requires the Fast Peripheral Clock(PCLK) to be set to MCLK in CLOCK APP.</li> </ol>     |
| PWM_CCU8             | <ol style="list-style-type: none"> <li>1. Shadow transfer setting tab is not supported in XMC45xx devices</li> <li>2. Shadow transfer setting tab, immediate write and automatic shadow transfer feature support is limited to XMC14xx devices</li> <li>3. In XMC1400, Shadow transfer setting tab, immediate write and automatic shadow transfer feature requires the Fast Peripheral Clock(PCLK) to be set to MCLK in CLOCK APP.</li> </ol>       |
| COMP_REF             | <ol style="list-style-type: none"> <li>1. Internal filter is not supported for XMC12x and XMC13x AA step.</li> </ol>  |
| BUCK_VC_FIX_FQ       | <ol style="list-style-type: none"> <li>1. ADC conversion mode in ADC_SCAN/ADC_QUEUE APPs should be selected as 12 bit Conversion.</li> <li>2. In case of XMC1x family, Digital supply voltage for microcontroller should be 3.3 volts.</li> </ol>   |
| BUCK_PCC_FIX_FQ      | <ol style="list-style-type: none"> <li>1. ADC conversion mode in ADC_SCAN/ADC_QUEUE APPs should be selected as 12 bit Conversion.</li> <li>2. In case of XMC1x family, Digital supply voltage for microcontroller should be 3.3 volts.</li> </ol>   |
| SPI_MASTER           | <ol style="list-style-type: none"> <li>1. For XMC14 devices: Odd parity error interrupt is kept on occurring even though the data transaction is proper.</li> </ol>   |
| SPI_SLAVE, I2C_SLAVE | <ol style="list-style-type: none"> <li>1. For XMC14 devices: Dual and quad modes are disabled due to data corruption.</li> <li>2. For XMC48 devices: During a bulk transfer of data in Quad mode has data corruption (observed only in reception end).</li> <li>3. In direct mode, in case of master requested bytes less than the slave response bytes then there is no time-out mechanism handled.</li> </ol>                                     |

|                     |  |
|---------------------|--|
| I2C_SLAVE           | In direct mode, if the master requested bytes are less than the slave response bytes then there is no time-out mechanism handled.<br>If slave is not ready to transmit and if the master is trying to receive data, master will wait endlessly due to clock stretch. |
| PDM_DIMMED_LED_LAMP | Internal reference using BCCU/CCU will not work in Light DCDC Driver card, due to the parasitic pad inductance which makes the generated reference value unstable.   |
| ALL                 | When using Tasking compiler – recommended to use version 5.1r1 and above   |

### Important Note:

- ❖ There will be a validation error message shown during the code generation, when DAVE projects with ADC APPs upgraded to September2016 released APP versions. The minimum sampling time allowed for default configuration is increased from 62.5 nanoseconds to 125 nanoseconds. Configure the GUI widget “Desired sampling time” to the allowable range and continue code generation to solve the validation error.
- ❖ The Update site of DAVE APPs, Device pack, Device Descriptions works with DAVE v4.1.4 or higher version. This update site must not be used with DAVE v4.1.2. We recommend using DAVE v4.3.2 or higher versions.
- ❖ The following APPs released in September2016 does not support XMC4700/XMC4800/XMC4300 and XMC1400 devices: ACIM\_FREQ\_CTRL, AUTOMATION, GLOBAL\_POSIF, MOTOR\_LIB, PWM\_BC, and PWM\_SVM. These APPs should not be used in these devices.

## **7 DAVE APPs Revision History**

The revision history of APPs is described in individual APPs help document.