

**ARM® Cortex®-M4**  
**32-bit Microcontroller**

**NUC472/NUC442 CMSIS BSP**  
**Revision History**

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**Revision 3.03.003 (Released 2022-1-3)**


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1. Add time-out check to drivers and samples to prevent from infinite loop.
2. Enable I2C pin schmitt trigger.
3. Minor bug fix.

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**Revision 3.03.002 (Released 2020-10-6)**


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1. Added Apache-2.0 license declaration into driver source code..
2. Minor bug fix.

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**Revision 3.03.001 (Released 2019-11-11)**


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1. Added ISP related samples.
2. Minor bug fix.

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**Revision 3.03.000 (Released 2018-8-30)**


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1. Added Eclipse project support.
2. Minor bug fix.

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**Revision 3.02.001 (Released 2017-3-10)**


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1. Updated CMSIS to v4.5.0.
2. Updated CLK\_Idle() to clear CLK\_PWRCON\_PWR\_DOWN\_EN\_Msk flag before entering idle mode.
3. Updated bit time calculation method in CAN driver to get more accurate results.
4. Updated USBD\_ENABLE\_PHY() macro to avoid a short period of SE1 state on USB bus after PHY enabled.
5. Fixed smartcard driver and library behaviors that do not comply with EMV2000 spec.
6. Fixed GPIO port E multi-function pin definition errors.
7. Fixed CLK\_CLKSEL0\_USBHSEL\_PLL and CLK\_CLKSEL0\_USBHSEL\_PLL2 definition errors.
8. Added definitions for ICAP, EADC, and WDT clock source selection.
9. Removed PDMA timeout related API/MACRO calls.
10. Replaced CLK\_APBCLK1\_PWM1CH23CKEN\*, CLK\_APBCLK1\_PWM1CH45CKEN\* definitions with CLK\_APBCLK1\_PWM1CH2345CKEN\*.

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**Revision 3.02.000 (Released 2015-12-4)**


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1. Updated TDES\_Open() to force using three keys in TDES encryption and decryption and provided the same key1 and key3 if only two keys are used in TDES.
2. Removed FMC DID related functions and macros.
3. Removed FMC\_SetBootSource(), FMC\_DisableAPUUpdate(), FMC\_DisableConfigUpdate(), FMC\_DisableLDUpdate(), FMC\_EnableAPUUpdate(), FMC\_EnableConfigUpdate() and FMC\_EnableLDUpdate() functions because there exist functionally identical macros.
4. Removed TIMER\_CAPTURE\_FALLING\_THEN\_RISING\_EDGE and TIMER\_CAPTURE\_RISING\_THEN\_FALLING\_EDGE definition, and added TIMER\_CAPTURE\_FALLING\_AND\_RISING\_EDGE definition.
5. Added CRC and EPWM driver support.
6. Added RTC\_Spare\_Access, USBH\_UAC\_HID, USBH\_AUDIO\_CLASS, USBD\_Mass\_Storage\_DataFlash, EMAC\_uIP\_httpd, EMAC\_uIP\_telnetd, USBH\_HID\_Multi, USBH\_HID\_KEYBOARD, USBD\_Audio\_Microphone, CRC\_CCITT, CRC\_CRC8, ECAP, EPWM\_Brake, EPWM\_DeadZone, EADC\_PWM\_Trigger, EADC\_SimultaneousMode, and TIMER\_Wakeup sample codes.
7. Upgraded FatFs from R0.09b to R0.11a.
8. Upgraded FreeRTOS from v7.4.0 to v8.2.1.

9. Added uip-0.9 support.
10. Minor bug fix.

### Revision 3.01.001 (Released 2014-10-9)

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1. Removed NVIC\_EnableIRQ() function call in I2S\_Open() and SD\_Open().
2. Removed PI definition and add GPI definition.
3. Removed uCOS-II and uCOS-III samples.
4. Renamed CAN\_NOTMAL\_MODE to CAN\_NORMAL\_MODE.
5. Renamed UBSD\_\*( ) macros to USB\*\_\*( ).
6. Renamed USBH registers and related bit name.
7. Renamed PD13MFP\_SC3\_SS0 to PD13MFP\_SPI1\_SS0.
8. Replaced the USBH\_ProcessHubEvents() and usb\_hub\_events() return type from void to int.
9. Updated original USBH HID library with Nuvoton HID library with less footprint.
10. Updated bit field definition of register VREFCTL.
11. Enable branch buffer starting from version E MCU.
12. Added RTX support.
13. Added EADC driver.
14. Added Cortex-M4 BitBand and MPU sample codes.
15. Added ADC\_PDMA, EADC\_ADINT\_Trigger, EADC\_Compare, EADC\_STADC\_Trigger, EADC\_SWTRG\_Trigger, EADC\_Timer\_Trigger, I2S\_NAU8822\_PDMA, ISP\_Updater, USBD\_Bulk, USBD\_HID\_Mouse\_Vendor, USBD\_HID\_MouseKeyboard, USBD\_HID\_Transfer, USBD\_VCOM\_SerialEmulator, USBD\_VENDOR\_LBK, USBH\_VENDOR\_LBK samples.

### Revision 3.01.000 (Released 2014-5-23)

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1. Rename registers and bit fields.
2. Added Analog comparator (ACMP) driver.
3. Added I2S, ACMP, and USBD sample codes.
4. Minor bug fix.

### Revision 3.00.001 (Released 2014-4-25)

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1. Improved PWM driver performance.
2. Renamed EPWM register PWM0/2/4 to PWM\_CH0/2/4.
3. Updated IAR project files to support Nu-Link IAR driver v6287 or above.
4. Removed learning board directory NUC472-LB/.
5. Added wave player and hard fault sample.
6. Minor bug fix.

### Revision 3.00.000 (Released 2014-3-5)

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1. Moved Smartcard library one directory level up to Library\SmartcardLib\.
2. Added OTG dual role sample code and Learning Board G-sensor sample code.
3. Added FreeRTOS LwIP IAR project file.
4. Renamed RTC\_GetDatAndTime() to RTC\_GetDateAndTime().
5. Changed Major number from 1 to 3.
6. Minor bug fix.

### Revision 1.00.000 (Released 2014-1-14)

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1. Added CAN, SD, SC, SCUART driver and samples.
2. Added smartcard 7816-3 library.
3. Added NUC472 Tiny Board sample.
4. Renamed I2C\_GetClockBusFreq() to I2C\_GetBusClockFreq().

5. Renamed I2C\_SetClockBusFreq() to I2C\_SetBusClockFreq().
6. Renamed I2C\_SetSlaveMask() to I2C\_SetSlaveAddrMask().
7. Minor bug fix.

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**Revision 0.10.000** (Released 2013-12-4)

1. Added I<sup>2</sup>S and PDMA drivers.
2. Added Learning Board and Standard Driver samples.
3. Added FreeRTOS LwIP sample.

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**Revision 0.09.000** (Released 2013-11-11)

1. Added CAP, EBI, I<sup>2</sup>C, PWM, SPI, USBD, and USBH drivers and samples.
2. Added uCOS-II and uCOS-III samples.
3. Added FreeRTOS source code and sample.

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**Revision 0.08.000** (Released 2013-10-25)

1. Preliminary release.

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