IOCreg.inc

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;                                                                             ;
;                                  IOCreg.inc                                 ;
;                              IOC Register Constants                         ;
;                                   Include File                              ;
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; This file contains the constants for the IOC control registers for the TI
; CC2652 microcontroller.
;
; References: CC13×2, CC26×2 SimpleLink™ Wireless MCU Technical Reference Manual
;             https://www.ti.com/lit/ug/swcu185g/swcu185g.pdf?ts=1761608306803
;
; Revision History:
;     2/16/22  Glen George      initial revision
;    11/05/23  Glen George      update style and comments
;    10/28/25  Steven Lei       add references to CC2652 Reference manual


; I/O (DIO) pins are configured through the IOCFGn registers in the MCU IOC
; IOCFGn registers are memory mapped
;   sec 13.3, pg 1070

; Base address of the registers
;   table 3-1, pg 319
IOC_BASE_ADDR       .equ    0×40081000   ;I/O Controller registers

; IOCFGn register offsets in memory map
;   sec 13.10.3, pg 1106

IOCFG0              .equ    0×0000       ;I/O configuration for DIO0
IOCFG1              .equ    0×0004       ;I/O configuration for DIO1
IOCFG2              .equ    0×0008       ;I/O configuration for DIO2
IOCFG3              .equ    0×000C       ;I/O configuration for DIO3
IOCFG4              .equ    0×0010       ;I/O configuration for DIO4
IOCFG5              .equ    0×0014       ;I/O configuration for DIO5
IOCFG6              .equ    0×0018       ;I/O configuration for DIO6
IOCFG7              .equ    0×001C       ;I/O configuration for DIO7
IOCFG8              .equ    0×0020       ;I/O configuration for DIO8
IOCFG9              .equ    0×0024       ;I/O configuration for DIO9
IOCFG10             .equ    0×0028       ;I/O configuration for DIO10
IOCFG11             .equ    0×002C       ;I/O configuration for DIO11
IOCFG12             .equ    0×0030       ;I/O configuration for DIO12
IOCFG13             .equ    0×0034       ;I/O configuration for DIO13
IOCFG14             .equ    0×0038       ;I/O configuration for DIO14
IOCFG15             .equ    0×003C       ;I/O configuration for DIO15
IOCFG16             .equ    0×0040       ;I/O configuration for DIO16
IOCFG17             .equ    0×0044       ;I/O configuration for DIO17
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IOCFG18             .equ    0x0048      ;I/O configuration for DIO18
IOCFG19             .equ    0x004C      ;I/O configuration for DIO19
IOCFG20             .equ    0x0050      ;I/O configuration for DIO20
IOCFG21             .equ    0x0054      ;I/O configuration for DIO21
IOCFG22             .equ    0x0058      ;I/O configuration for DIO22
IOCFG23             .equ    0x005C      ;I/O configuration for DIO23
IOCFG24             .equ    0x0060      ;I/O configuration for DIO24
IOCFG25             .equ    0x0064      ;I/O configuration for DIO25
IOCFG26             .equ    0x0068      ;I/O configuration for DIO26
IOCFG27             .equ    0x006C      ;I/O configuration for DIO27
IOCFG28             .equ    0x0070      ;I/O configuration for DIO28
IOCFG29             .equ    0x0074      ;I/O configuration for DIO29
IOCFG30             .equ    0x0078      ;I/O configuration for DIO30
IOCFG31             .equ    0x007C      ;I/O configuration for DIO31


; Port IDs determine the what peripheral function is routed to the pin
; (e.g. GPIO, SSI). Bits 0 to 5 of IOCFGn registers
;   sec 13.8, pg 1074

IOCFG_GPIO          .equ    0           ;use pin for GPIO
IOCFG_AON32         .equ    7           ;use pin for AON 32 KHz clock
IOCFG_AUXIO         .equ    8           ;use pin for AUX IO
IOCFG_SSI0_RX       .equ    9           ;use pin for SSI0 receive
IOCFG_SSI0_TX       .equ    10          ;use pin for SSI0 transmit
IOCFG_SSI0_FSS      .equ    11          ;use pin for SSI0 frame signal
IOCFG_SSI0_CLK      .equ    12          ;use pin for SSI0 clock
IOCFG_I2C_MSSDA     .equ    13          ;use pin for I2C data
IOCFG_I2C_MSSCL     .equ    14          ;use pin for I2C clock
IOCFG_UART0_RX      .equ    15          ;use pin for UART0 receive
IOCFG_UART0_TX      .equ    16          ;use pin for UART0 transmit
IOCFG_UART0_CTS     .equ    17          ;use pin for UART0 CTS
IOCFG_UART0_RTS     .equ    18          ;use pin for UART0 RTS
IOCFG_UART1_RX      .equ    19          ;use pin for UART1 receive
IOCFG_UART1_TX      .equ    20          ;use pin for UART1 transmit
IOCFG_UART1_CTS     .equ    21          ;use pin for UART1 CTS
IOCFG_UART1_RTS     .equ    22          ;use pin for UART1 RTS
IOCFG_PORT_EVENT0   .equ    23          ;use pin for I/O for event 0
IOCFG_PORT_EVENT1   .equ    24          ;use pin for I/O for event 1
IOCFG_PORT_EVENT2   .equ    25          ;use pin for I/O for event 2
IOCFG_PORT_EVENT3   .equ    26          ;use pin for I/O for event 3
IOCFG_PORT_EVENT4   .equ    27          ;use pin for I/O for event 4
IOCFG_PORT_EVENT5   .equ    28          ;use pin for I/O for event 5
IOCFG_PORT_EVENT6   .equ    29          ;use pin for I/O for event 6
IOCFG_PORT_EVENT7   .equ    30          ;use pin for I/O for event 7
IOCFG_CPU_SWV       .equ    32          ;use pin for CPU SWV
IOCFG_SSI1_RX       .equ    33          ;use pin for SSI1 receive
IOCFG_SSI1_TX       .equ    34          ;use pin for SSI1 transmit
IOCFG_SSI1_FSS      .equ    35          ;use pin for SSI1 frame signal
IOCFG_SSI1_CLK      .equ    36          ;use pin for SSI1 clock
IOCFG_I2S_AD0       .equ    37          ;use pin for I2S data 0
IOCFG_I2S_AD1       .equ    38          ;use pin for I2S data 1
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IOCFG_I2S_WCLK     .equ    39          ;use pin for I2S WCLK
IOCFG_I2S_BCLK     .equ    40          ;use pin for I2S BCLK
IOCFG_I2S_MCLK     .equ    41          ;use pin for I2S MCLK
IOCFG_RFC_TRACE    .equ    46          ;use pin for RF core trace
IOCFG_RFC_DO0      .equ    47          ;use pin for RF core data out 0
IOCFG_RFC_DO1      .equ    48          ;use pin for RF core data out 1
IOCFG_RFC_DO2      .equ    49          ;use pin for RF core data out 2
IOCFG_RFC_DO3      .equ    50          ;use pin for RF core data out 3
IOCFG_RFC_DI0      .equ    51          ;use pin for RF core data in 0
IOCFG_RFC_DI1      .equ    52          ;use pin for RF core data in 1
IOCFG_RFC_SDO      .equ    53          ;use pin for RF core SMI data link out
IOCFG_RFC_SDI      .equ    54          ;use pin for RF core SMI data link in
IOCFG_RFC_SCO      .equ    55          ;use pin for RF core SMI command link out
IOCFG_RFC_SCI      .equ    56          ;use pin for RF core SMI command link in


; General IOCFGn configurations (applies to all registers), bits 31:0
;   example for ICOFG0:
;   sec 13.10.3.1, pg 1103

IOCFG_GEN_DIN      .equ    0x20006000   ;general purpose data input pin
                ;0------------------------------ reserved
                ;-0----------------------------- no hysteresis
                ;--1---------------------------- input
                ;---00--------------------------- no wakeup
                ;-----000------------------------ normal mode
                ;--------000--------------------- no edge detect events
                ;-----------00------------------- reserved
                ;-------------0------------------ no edge detect IRQ
                ;--------------00---------------- no edge detection
                ;----------------0--------------- reserved
                ;-----------------11------------- no pull up/down
                ;-------------------0------------ normal slew
                ;--------------------00---------- 2mA output
                ;----------------------00-------- auto drive strength control
                ;------------------------0------- no edge detect RTC event
                ;-------------------------0------ no edge detect wake up event
                ;--------------------------000000 general purpose I/O

IOCFG_GEN_DOUT     .equ    0x00006000   ;general purpose data output pin
                ;0------------------------------ reserved
                ;-0----------------------------- no hysteresis
                ;--0---------------------------- output
                ;---00--------------------------- no wakeup
                ;-----000------------------------ normal mode
                ;--------000--------------------- no edge detect events
                ;-----------00------------------- reserved
                ;-------------0------------------ no edge detect IRQ
                ;--------------00---------------- no edge detection
                ;----------------0--------------- reserved
                ;-----------------11------------- no pull up/down
                ;-------------------0------------ normal slew
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154                 ;————————————————————00————————— 2mA output
155                 ;——————————————————————00————————— auto drive strength control
156                 ;————————————————————————0————————— no edge detect RTC event
157                 ;————————————————————————0————————— no edge detect wake up event
158                 ;————————————————————————000000 general purpose I/O
159
160 IOCFG_GEN_DOUT_4MA .equ    0×00006400   ;general data output pin with 4mA drive
161                 ;0————————————————————————————— reserved
162                 ;-0————————————————————————————— no hysteresis
163                 ;--0————————————————————————————— output
164                 ;——00————————————————————————————— no wakeup
165                 ;———000————————————————————————————— normal mode
166                 ;————————000————————————————————————— no edge detect events
167                 ;——————————00————————————————————————— reserved
168                 ;———————————0————————————————————————— no edge detect IRQ
169                 ;————————————00————————————————————————— no edge detection
170                 ;—————————————0—————————————————————————— reserved
171                 ;——————————————11——————————————————————— no pull up/down
172                 ;———————————————0———————————————————————— normal slew
173                 ;————————————————01————————————————————— 4mA output
174                 ;——————————————————00————————————————————— auto drive strength control
175                 ;————————————————————0————————————————————— no edge detect RTC event
176                 ;————————————————————0————————————————————— no edge detect wake up event
177                 ;————————————————————000000————————————————— general purpose I/O
178
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