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;...MSP430F2013·Intelligent·PCF8583·Replacement·with·4·Counter·and·1·A/D·Chanel
;...Initiated·By·Michael·Lavallo
;...Programmed·By·Patrick·Linder
;...Description:·Design·for·1·Hardware·Counter·as·Timer·A2·(HighSpeed·up·to·16MHz,·no·IRQ)
;...3·Software·16Bit·Counter·by·IRQ·Max·Freq·1MHz·by·one·Counter
;...300kHz·by·Simultane·3·Counter·active!
;...in·Super·Lowpower·mode·Approx·0.2µA·Max·Freq·100Hz·by·one
;...30Hz·by·Simultane·3·Counter·active!
;...Rev·0.3:·Set·WDT·as·watchdog·or·Timermode·dependent·of·Speed
;...Add·an·Clockedge·Configuration
;...Rev·0.2:·Aplicate·FlowChart·and·Commands
;...Rev·0.1:·Aplicate·Speed·Commands·for·more·Flexibility
/*Commands*/
;...!!!!!!·16·Bit·Parameter·Write·Commands·!!!!!!
//·@00.0·=·Clears·all·counter·calculator·registers·(global·erase)
//·@Y0.0·=·Clears·all·counter·calculator·registers·to·Counter·"Y"(1~5)
//·@YX.0·=·write·counter·calculator·"Y"·Register·"X"·with·value·"0"
//·(erase)
//·@11.n·>·Addition/Subtraktion·value(n)·Range·-65536~(+)·65535
//·(example·for·conversion·C°in·F°)
//·example:11.27·=·add·27·to·the·Countvalue
//·example:11.-10·=·subtract·10·from·Countvalue
//·example:11.10-·=·subtract·Countvalue·from·10
//·@12.n·>·Multiplikation/Division·value(n)·Range·-0~256·/·(+)·0~256
//·(example·as·calculate·Counts·to·Km/h)
//·example:12.10·=·multiply·the·counter·by·10
//·example:12.-10·=·divide·the·numerator·by·10
//·example:12.10-·=·divide·10·by·the·counter·value
//·@13.n·>·Addition/Subtraktion·value(n)·Range·-65536~(+)·65535
//·(like·@11.n)
//·@14.n·>·Multiplikation/Division·value(n)·Range·-0~256·/·(+)·256
//·(like·@12.n)
//·@2X.n·=·like·@11.n·to·@14.n·but·for·Counter·2
//·@3X.n·=·like·@11.n·to·@14.n·but·for·Counter·3
//·@4X.n·=·like·@11.n·to·@14.n·but·for·Counter·4
//·@5X.n·=·like·@11.n·to·@14.n·but·for·A/D·Kanal·1
;...!!!!!!·Design·Parameter·Config·Commands·!!!!!!
//·C0····=·set·at·Lowspeed·Mode·Max·Freq·Counter·2~4·100Hz·LPM4·Aprox·0.2µA·(Def.)
//·C1····=·set·at·Midspeed·Mode·Max·Freq·Counter·2~4·1kHz·LPM3·Aprox·1µA
//·C2····=·set·at·Medspeed·Mode·Max·Freq·Counter·2~4·100kHz·LPM1·Aprox·90µA
//·C3····=·set·at·Higspeed·Mode·Max·Freq·Counter·2~4·1MHz·LPM0·Aprox·3.6mA
//·Rnnnn·=·set·Pull·U/D·Resistor·Bin·n=0000~1111·->·0=No·1=Active·(default·=0)
//·|||+--[Ctr·1·Edge]
//·|||+---[Ctr·2·Edge]
//·|+----[Ctr·3·Edge]
//·+-----[Ctr·4·Edge]
//·Ennnn·=·set·clock·edge·Bin·n=0000·TO·1111·->·0=/_·1=^\_·(default·=0)
//·|||+--[Ctr·1]·····If·Pull·U/D·Resistor·Active,·set·dependent·Clockedge·
//·|||+---[Ctr·2]·····(0)·/_·->·Pull·Down·(1)·^\_·Pull·Up
//·|+----[Ctr·3]
//·+-----[Ctr·4]
;...!!!!!!·16·Bit·Parameter·Read·Commands·!!!!!!
//·RX····=·read·counter·X·over·calculation
//·NX····=·read·counter·X·without·calculation
//·$X····=·read·counter·X·over·calculation·at·HEX·Value
//·LX····=·erase·counter·X·(Reset)
/*FlowChart*/
//·
//·|Start·by·WdT|····|Start·by·PowerUp|
//·|····|····|····|
//·|····|····|····|
//·|Initiate·Stack|····|Initiate·Stack·|
//·|·Set·I/O's····|····|·Disable·WDT····|
//·|····|····|····|Set·Lo-Oscillator|
//·|····|····|····|Set·I/O's····|

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//.....|.....+
//...../^\
//...../...\
//...../..?..\
//.....<·Index=>[NO]->--·
//.....\$AA55/·|.....|.....
//.....\.../·|Clr·all·Calc·Reg·|
//.....\./·|··Reset·all·Ctr··|
//.....|···|···Clr·Timer···|
//.....[YES]·|Set·Lowspeed·(CØ)|
//.....|.....|.....
//.....+<-----'
//.....|.....|.....
//.....|Set·WDT·to·Mode·CFG|
//.....|Activate·Interrupts|
//.....|.....|.....
//.....+<-----·
//.....|.....|.....|.....|
//.....|Activate·LPMx|·|.....|
//.....|.....|.....|.....|
//.....'·->-----'

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