```
        LIST
; P16F628.INC  Standard Header File, Version 1.01    Microchip Technology, Inc.
        NOLIST

; This header file defines configurations, registers, and other useful bits of
; information for the PIC16F628 microcontroller.  These names are taken to match
; the data sheets as closely as possible.

; Note that the processor must be selected before this file is
; included.  The processor may be selected the following ways:

;       1. Command line switch:
;               C:\ MPASM MYFILE.ASM /PIC16F628
;       2. LIST directive in the source file
;               LIST   P=PIC16F628
;       3. Processor Type entry in the MPASM full-screen interface

;==========================================================================
;
;       Revision History
;
;==========================================================================

;Rev:   Date:    Reason:
;1.01   13 Sept 2001  Added _DATA_CP_ON and _DATA_CP_OFF
;1.00   10 Feb 1999 Initial Release

;==========================================================================
;
;       Verify Processor
;
;==========================================================================

        IFNDEF __16F628
           MESSG "Processor-header file mismatch.  Verify selected processor."
        ENDIF

;==========================================================================
;
;       Register Definitions
;
;==========================================================================

W                           EQU     H'0000'
F                           EQU     H'0001'

;----- Register Files------------------------------------------------------

INDF                        EQU     H'0000'
TMR0                        EQU     H'0001'
PCL                         EQU     H'0002'
STATUS                      EQU     H'0003'
FSR                         EQU     H'0004'
PORTA                       EQU     H'0005'
PORTB                       EQU     H'0006'
PCLATH                      EQU     H'000A'
INTCON                      EQU     H'000B'
PIR1                        EQU     H'000C'
TMR1L                       EQU     H'000E'
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TMR1H                           EQU     H'000F'
T1CON                           EQU     H'0010'
TMR2                            EQU     H'0011'
T2CON                           EQU     H'0012'
CCPR1L                          EQU     H'0015'
CCPR1H                          EQU     H'0016'
CCP1CON                         EQU     H'0017'
RCSTA                           EQU     H'0018'
TXREG                           EQU     H'0019'
RCREG                           EQU     H'001A'
CMCON                           EQU     H'001F'

OPTION_REG                      EQU     H'0081'
TRISA                           EQU     H'0085'
TRISB                           EQU     H'0086'
PIE1                            EQU     H'008C'
PCON                            EQU     H'008E'
PR2                             EQU     H'0092'
TXSTA                           EQU     H'0098'
SPBRG                           EQU     H'0099'
EEDATA                          EQU     H'009A'
EEADR                           EQU     H'009B'
EECON1                          EQU     H'009C'
EECON2                          EQU     H'009D'
VRCON                           EQU     H'009F'

;----- STATUS Bits --------------------------------------------------

IRP                             EQU     H'0007'
RP1                             EQU     H'0006'
RP0                             EQU     H'0005'
NOT_TO                          EQU     H'0004'
NOT_PD                          EQU     H'0003'
Z                               EQU     H'0002'
DC                              EQU     H'0001'
C                               EQU     H'0000'

;----- INTCON Bits --------------------------------------------------

GIE                             EQU     H'0007'
PEIE                            EQU     H'0006'
T0IE                            EQU     H'0005'
INTE                            EQU     H'0004'
RBIE                            EQU     H'0003'
T0IF                            EQU     H'0002'
INTF                            EQU     H'0001'
RBIF                            EQU     H'0000'

;----- PIR1 Bits ----------------------------------------------------

EEIF                            EQU     H'0007'
CMIF                            EQU     H'0006'
RCIF                            EQU     H'0005'
TXIF                            EQU     H'0004'
CCP1IF                          EQU     H'0002'
TMR2IF                          EQU     H'0001'
TMR1IF                          EQU     H'0000'

;----- T1CON Bits ---------------------------------------------------
T1CKPS1                         EQU     H'0005'
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T1CKPS0                         EQU     H'0004'
T1OSCEN                         EQU     H'0003'
NOT_T1SYNC                      EQU     H'0002'
TMR1CS                          EQU     H'0001'
TMR1ON                          EQU     H'0000'

;----- T2CON Bits --------------------------------------------------------
TOUTPS3                         EQU     H'0006'
TOUTPS2                         EQU     H'0005'
TOUTPS1                         EQU     H'0004'
TOUTPS0                         EQU     H'0003'
TMR2ON                          EQU     H'0002'
T2CKPS1                         EQU     H'0001'
T2CKPS0                         EQU     H'0000'

;----- CCP1CON Bits ------------------------------------------------------
CCP1X                           EQU     H'0005'
CCP1Y                           EQU     H'0004'
CCP1M3                          EQU     H'0003'
CCP1M2                          EQU     H'0002'
CCP1M1                          EQU     H'0001'
CCP1M0                          EQU     H'0000'

;----- RCSTA Bits --------------------------------------------------------
SPEN                            EQU     H'0007'
RX9                             EQU     H'0006'
SREN                            EQU     H'0005'
CREN                            EQU     H'0004'
ADEN                            EQU     H'0003'
FERR                            EQU     H'0002'
OERR                            EQU     H'0001'
RX9D                            EQU     H'0000'

;----- CMCON Bits --------------------------------------------------------

C2OUT                           EQU     H'0007'
C1OUT                           EQU     H'0006'
C2INV                           EQU     H'0005'
C1INV                           EQU     H'0004'
CIS                             EQU     H'0003'
CM2                             EQU     H'0002'
CM1                             EQU     H'0001'
CM0                             EQU     H'0000'

;----- OPTION Bits -------------------------------------------------------

NOT_RBPU                        EQU     H'0007'
INTEDG                          EQU     H'0006'
T0CS                            EQU     H'0005'
T0SE                            EQU     H'0004'
PSA                             EQU     H'0003'
PS2                             EQU     H'0002'
PS1                             EQU     H'0001'
PS0                             EQU     H'0000'

;----- PIE1 Bits ---------------------------------------------------------

EEIE                            EQU     H'0007'
CMIE                            EQU     H'0006'
RCIE                            EQU     H'0005'
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TXIE                            EQU     H'0004'
CCP1IE                          EQU     H'0002'
TMR2IE                          EQU     H'0001'
TMR1IE                          EQU     H'0000'

;----- PCON Bits --------------------------------------------------------

OSCF                            EQU     H'0003'
NOT_POR                         EQU     H'0001'
NOT_BO                          EQU     H'0000'
NOT_BOR                         EQU     H'0000'
NOT_BOD                         EQU     H'0000'

;----- TXSTA Bits -------------------------------------------------------------
CSRC                            EQU     H'0007'
TX9                             EQU     H'0006'
TXEN                            EQU     H'0005'
SYNC                            EQU     H'0004'
BRGH                            EQU     H'0002'
TRMT                            EQU     H'0001'
TX9D                            EQU     H'0000'

;----- EECON1 Bits ------------------------------------------------------------
WRERR                           EQU     H'0003'
WREN                            EQU     H'0002'
WR                              EQU     H'0001'
RD                              EQU     H'0000'

;----- VRCON Bits -------------------------------------------------------

VREN                            EQU     H'0007'
VROE                            EQU     H'0006'
VRR                             EQU     H'0005'
VR3                             EQU     H'0003'
VR2                             EQU     H'0002'
VR1                             EQU     H'0001'
VR0                             EQU     H'0000'

;=========================================================================
;
;       RAM Definition
;
;=========================================================================

    __MAXRAM H'01FF'
    __BADRAM H'07'-H'09', H'0D', H'13'-H'14', H'1B'-H'1E'
    __BADRAM H'87'-H'89', H'8D', H'8F'-H'91', H'93'-H'97', H'9E'
    __BADRAM H'105', H'107'-H'109', H'10C'-H'11F', H'150'-H'16F'
    __BADRAM H'185', H'187'-H'189', H'18C'-H'1EF'

;=========================================================================
;
;       Configuration Bits
;
;=========================================================================

_BODEN_ON                       EQU     H'3FFF'
_BODEN_OFF                      EQU     H'3FBF'
_CP_ALL                         EQU     H'03FF'
_CP_75                          EQU     H'17FF'
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_CP_50                          EQU     H'2BFF'
_CP_OFF                         EQU     H'3FFF'
_DATA_CP_ON                     EQU     H'3EFF'
_DATA_CP_OFF                    EQU     H'3FFF'
_PWRTE_OFF                      EQU     H'3FFF'
_PWRTE_ON                       EQU     H'3FF7'
_WDT_ON                         EQU     H'3FFF'
_WDT_OFF                        EQU     H'3FFB'
_LVP_ON                         EQU     H'3FFF'
_LVP_OFF                        EQU     H'3F7F'
_MCLRE_ON                       EQU     H'3FFF'
_MCLRE_OFF                      EQU     H'3FDF'
_ER_OSC_CLKOUT                  EQU     H'3FFF'
_ER_OSC_NOCLKOUT                EQU     H'3FFE'
_INTRC_OSC_CLKOUT               EQU     H'3FFD'
_INTRC_OSC_NOCLKOUT             EQU     H'3FFC'
_EXTCLK_OSC                     EQU     H'3FEF'
_LP_OSC                         EQU     H'3FEC'
_XT_OSC                         EQU     H'3FED'
_HS_OSC                         EQU     H'3FEE'

        LIST
```