

0 FORMATO HEX

```
:020000040000FA  
:0800000003178600850183123D  
:02400E00183D5B  
:00000001FF  
:00000000TL
```

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A partir do HEX

- 🌐 O formato HEX proposto pela INTEL[®] e usado até os dias de hoje, é conforme o gráfico seguinte:

: 020000040000FA

: 0800000003178600850183123D

: 02400E00183D5B

: 00000001FF

HEX

Inicia com 3AH

Dados úteis



Do qual, podemos enxergar melhor colorindo:

```
:020000040000FA
:0800000003178600850183123D
:02400E00183D5B
:00000001FF
```

Checksum

Bytes úteis

Endereço
de gravação

04 - início
01 - fim
00 - Dados úteis

Extraindo os dados

:020000040000FA

:0800000003178600850183123D

:02400E00183D5B

:00000001FF

Analisando uma linha

:020000040000FA

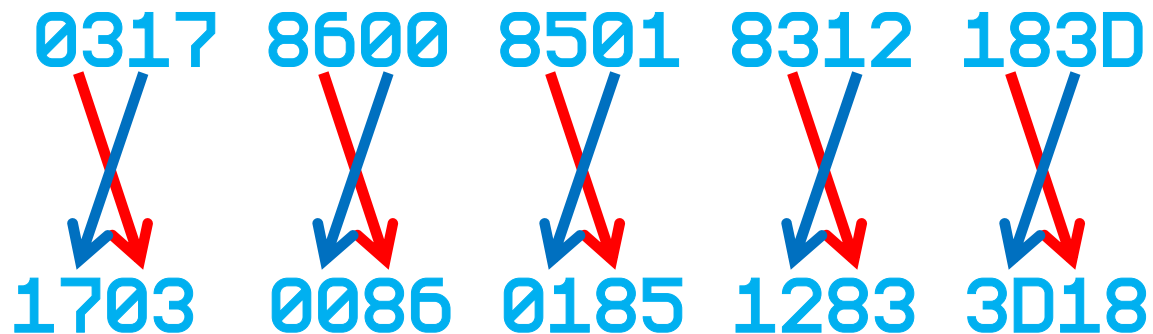
:0800000003178600850183123D

:02400E00183D5B

:00000001FF

Este é o programa !

0317860085018312183D



Detalhando

1703 = ~~X~~ 01011100000011 14 bits

E eliminamos os dois bits extras
(14 e 15) ficando com:

01011100000011

Formato de comando

01.0111.0000.0011

que equivale a:

bsf 3,6 = bsf STATUS,RP1

código de comando do PIC 16F888

Operações de registros orientados a Byte

Mnemônico	Operando	Descrição	Ciclos	MSB			LSB	Flags
ADDWF	f,d	Add W and f	1	00	0111	dfff	ffff	C,DC,Z
ANDWF	f,d	AND W with f	1	00	0101	dfff	ffff	Z
CLRF	f-	Clear f	1	00	0001	1fff	ffff	Z
CLRW	f,d	Clear W	1	00	0001	0xxx	xxxx	Z
COMF	f,d	Complement f	1	00	1001	dfff	ffff	Z
DECF	f,d	Decrement f	1	00	0011	dfff	ffff	Z
DECFSZ	f,d	Decrement f, Skip if 0	1	00	1011	dfff	ffff	
INCF	f,d	Increment f	1	00	1010	dfff	ffff	Z
INCFSZ	f,d	Increment f, Skip if 0	1	00	1111	dfff	ffff	
IORWF	f,d	Inclusive OR W with f	1	00	0100	dfff	ffff	Z
MOVF	f -	Move f	1	00	1000	dfff	ffff	Z
MOVWF	f,d	Move W to f	1	00	0000	1fff	ffff	
NOP	f,d	No Operation	1	00	0000	0xx0	0000	
RLF	f,d	Rotate Left f through Carry	1	00	1101	dfff	ffff	C
RRF	f,d	Rotate Right f through Carry	1	00	1100	dfff	ffff	C
SUBWF	f,d	Subtract W from f	1	00	0010	dfff	ffff	C,DC,Z
SWAPF	f,d	Swap nibbles in f	1	00	1110	dfff	ffff	
XORWF	f,d	Exclusive OR W with f	1	00	0110	dfff	ffff	Z

Operações de registros orientados a bit

<u>Mnemônico</u>	<u>Operando</u>	<u>Descrição</u>	<u>Ciclos</u>	<u>MSB</u>			<u>LSB</u>	<u>Flags</u>
BCF	f,d	Bit Clear f	1	01	00bb	bfff	ffff	
BSF	f,d	Bit Set f	1	01	01bb	bfff	ffff	
BTFSC	f,d	Bit Test f, Skip if Clear	1	01	10bb	bfff	ffff	
BTFSS	f,d	Bit Test f, Skip if Set	1	01	11bb	bfff	ffff	

Operações literais e de controle

<u>Mnemônico</u>	<u>Operando</u>	<u>Descrição</u>	<u>Ciclos</u>	<u>MSB</u>			<u>LSB</u>	<u>Flags</u>
ADDLW	k	Add literal and W	1	11	111x	kkkk	kkkk	C,DC,Z
ANDLW	k	AND literal with W	1	11	1001	kkkk	kkkk	Z
CALL	k	Call subroutine	2	10	0kkk	kkkk	kkkk	
CLRWDT	-	Clear Watchdog Timer	1	00	0000	0110	0100	TO,PD
GOTO	k	Go to address	2	10	1kkk	kkkk	kkkk	
IORLW	k	Inclusive OR literal with W	1	11	1000	kkkk	kkkk	Z
MOVLW	k	Move literal to W	1	11	00xx	kkkk	kkkk	
RETFIE	-	Return from interrupt	2	00	0000	0000	1001	
RETLW	k	Return with literal in W	2	11	01xx	kkkk	kkkk	
RETURN	-	Return from Subroutine	2	00	0000	0000	1000	
SLEEP	-	Go into Standby mode	1	00	0000	0110	0011	TO,PD
SUBLW	k	Subtract W from literal	1	11	110x	kkkk	kkkk	C,DC,Z
XORLW	k	Exclusive OR literal with W	1	11	1010	kkkk	kkkk	Z