

Another Hexadecimal to Decimal Conversion

by Mace

Garth Wilson used decimal mode in [Hexadecimal to Decimal Conversion](#) and the result was in 3 bytes in decimal mode. I needed plain ASCII, the following routine does just that, using more or less the same method as Garth used:

```
start:
    lda #$30    // clear the result buffer
    ldy #$00
clear:
    sta result,y
    iny
    cpy #$05
    bne clear
    ldx #$4f
loop1:
    clc
    rol lobyte
    rol hibyte
    bcs calculate    // when a bit drops off, it means we need to
calculate
    // if not, go to the next bit
    txa
    axs #$05    // ILLEGAL OPCODE, use the 3 lines below as alternative
    // sec
    // sbc #$05
    // tax
    cpx #$ff
    bne loop1
END:
    rts

calculate:
    clc
    ldy #$04
loop2:
    lda table,x    // get the decimal equivalent of the bit in ASCII
numbers
    beq zero    // skip (speed up) when there's nothing to add
    adc result,y    // add to whatever result we already have
    cmp #$3a    // passing 10 with the addition?
    bcc notten
    sbc #$0a    // if so, subtract 10, carry will take care of overflow
notten:
    sta result,y
zero:
    dex
    dey
```

```
bpl loop2 // loop until all 5 digits have been
jmp loop1
table:
    .byte 0,0,0,0,1
    .byte 0,0,0,0,2
    .byte 0,0,0,0,4
    .byte 0,0,0,0,8
    .byte 0,0,0,1,6
    .byte 0,0,0,3,2
    .byte 0,0,0,6,4
    .byte 0,0,1,2,8
    .byte 0,0,2,5,6
    .byte 0,0,5,1,2
    .byte 0,1,0,2,4
    .byte 0,2,0,4,8
    .byte 0,4,0,9,6
    .byte 0,8,1,9,2
    .byte 1,6,3,8,4
    .byte 3,2,7,6,8

result:
    .byte 0,0,0,0,0
lobyte:
    .byte 11
hibyte:
    .byte 0
```

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