Frequently Used Code

~~2013/9/29~~ 20160107

Print out to TeraTerm

word' . ' print out figure from 0 to FFFFFFFF
And it follow space.
Control-code(for example TAB=9) is ignore.
If you don't add space, you can use word'.byte/.word/.long'.

```
Prop0 Cog6 ok
hex
Prop0 Cog6 ok
0 .
0 Prop0 Cog6 ok
9 .
9 Prop0 Cog6 ok
FFFFFFFF .
-1 Prop0 Cog6 ok
9 .byte
09Prop0 Cog6 ok
FFFFFFFF .byte
FFProp0 Cog6 ok
FFFFFFFF .long
FFFF_FFFFProp0 Cog6 ok
```

Word'emit' print out character-code.
This is used for printing character.
Control-code also print out.
And space is not added.
Printed characters are depended on your PC's character-code.
Your system might not print out 'B1 emit'. Or different character.

```
Prop0 Cog6 ok
hex
Prop0 Cog6 ok
0 emit
Prop0 Cog6 ok
9 emit
(TAB) Prop0 Cog6 ok
30 emit
0Prop0 Cog6 ok
Prop0 Cog6 ok
7D emit
}Prop0 Cog6 ok
7E emit
```

```
?Prop0 Cog6 ok
7F emit
Prop0 Cog6 ok
A1 emit
。Prop0 Cog6 ok
B1 emit
⁊ Prop0 Cog6 ok
```

Definition of port

Defining port to OUT/IN
Using 'wconstant '

```
0 wconstant DATA
1 wconstant SCLK
2 wconstant LCLK
3 wconstant IN
```

Defining input-port's mask
Using 'constant'
It can use wconstant if port is from P0 to P15

```
IN >m constant INm
```

WORD-definition set up each out-port to hi/lo

```
: data_l DATA pinlo ;
: data_h DATA pinhi ;
: sclk_l SCLK pinlo ;
: sclk_h SCLK pinhi ;
: lclk_l LCLK pinlo ;
: lclk_h LCLK pinhi ;
```

Set port to OUT
(Default: Port is IN Status on output-port is Low)

```
: setup DATA 3 0 do dup pinout 1+ loop drop ;
```

Variable

variable for Long(4 bytes)

```
variable name
```

variable for word(2bytes)

```
wvariable name
```

Constant

constant for Long(4 bytes)

```
h12345678 constant name
```

constant for word(2bytes)

```
h1234 wconstant name
```

sample1 define 2 word constant(h1234 and hCCCC).
"-4 allot" roll back memory because sample1 have 4byte by variable

```
variable sample1 -4 allot h1234 w, hCCCC w,
wvariable sample2 -2 allot h12345678 l, hCCCCDDDD l,
```

Array

Array below are both 10bytes.

```
wvariable array1  8 allot
variable array2  6 allot
```

When definition of wvariable, array1 already occupy 2byte.
By using 8 allot, it add 8bytes.

Breaking loop

Repeat-loop break by hitting any key

```
begin
        - statement -
        fkey? swap drop
until
```

Repeat-loop break by ESC-key

```
begin
        - statement -
        fkey?
        if
                h1B = if  1 else 0 then      \ ESC-key is h1B
        else
                drop 0
        then
until
```

Case statement

No case-statement in PropForth.
But there is substitute.
In case of value1=1 or 2 or 3 or >3 below;

```
\ ( n1 n2  -- n1 t/f )   n1:integer   n2;compared value  t/f: t = matched
: case over = ;

\ (n1 -- )  n1:integer
:  test
1 case
if
        statement1
else 2 case
if
        statement2
else 3 case
if
        statement3
else
        statement4
thens
drop
;
```

String

Case1
Using defined word when string is 2,3 pieces.

There is inside PropForthStartKernel.f.

```
: (version) c" PropForth v5.0 2012JAN09 14:30 0" ;
    Prop0 Cog6 ok
    (version) .cstr cr
    PropForth v5.0 2012JAN09 14:30 0
    Prop0 Cog6 ok

    Prop0 Cog6 ok
    hex
    Prop0 Cog6 ok
    (version) 40 dump

    0AC8 0040:
    0AC8: 20 50 72 6F 70 46 6F 72 74 68 20 76 35 2E 35 20    PropForth v5.5
    0AD8: 32 30 31 33 46 65 62 32 30 20 31 31 3A 33 30 20   2013Feb20 11:30
    0AE8: 30 00 61 00 BC 0A 84 70 72 6F 70 00 4F 00 B2 0A   0.a....prop.O...
    0AF8: EE 0A 87 76 65 72 73 69 6F 6E 4F 00 C8 0A FA 0A   ...versionO.....
    Prop0 Cog6 ok
```

Case2

Using defined word when string's length is same.

```
: test
c" JANFEBMARAPRMAYJUNJULAUGSEPOCTNOVDEC"
1+ swap hC min 1 max 1- 3 u* +
3 0 do dup C@ emit 1+ loop drop
;

    Prop0 Cog6 ok
    2 test cr
    FEB
    Prop0 Cog6 ok

    Prop0 Cog6 ok
    hex
    Prop0 Cog6 ok
    words test
    NFA (Forth/Asm Immediate eXecute) Name
    44BE F   test
    Prop0 Cog6 ok
    44BE 30 dump

    44BE 0030:
    44BE: 84 74 65 73 74 00 66 26 24 4A 41 4E 46 45 42 4D   .test.f&$JANFEBM
    44CE: 41 52 41 50 52 4D 41 59 4A 55 4E 4A 55 4C 41 55   ARAPRMAYJUNJULAU
    44DE: 47 53 45 50 4F 43 54 4E 4F 56 44 45 43 00 A0 14   GSEPOCTNOVDEC...
    Prop0 Cog6 ok
```

Case3
Allocating strings when using many differnt length strings

Defining word store string

```
: s, parsenw dup C@ 1+ bounds dup rot2 do C@++ c, loop drop ;
```

Defining string

```
wvariable main -2 allot s, Input s, Output s, Collection s, Feature s, EndCollection
wvariable global -2 allot s, UsagePage s, LogicalMinimum s, LogicalMaximum
s, PhysicalMinimum s, PhysicalMaximum s, UnutExponent s, Unit s, ReportSize
s, ReportID s, ReportCount s, Push s, Pop
wvariable local -2 allot s, Usage s, UsageMinimum s, UsageMaximum
s, DesignatorIndex s, DesignatorMinimum s, StringIndex s, StringMinimum
s, StringMaximum s, Delimiter
wvariable Attribute -2 allot s, Data s, Constant s, Array s, Variable s, Absolute
s, Relative
```

wvariable Collection -2 allot s, Physical s, Application s, Logical s, Report
s, NamedArray s, UsageSwitch s, UsageModifier
wvariable UsagePage -2 allot s, Undefined s, Generic_Desktop_Controls
s, Simulation_Controls s, VR_Controls s, Sport_Controls
s, Game_Controls s, Generic_Device_Controls s, Keyboard/Keypad s, LEDs s, Button
s, Ordinal s, Telephony s, Consumer
wvariable Generic_Desktop_Page -2 allot s, Undefined s, Pointer s, Mouse s, Reserved
s, Joystick s, Game_Pad s, Keyboard
s, Keypad s, Multi-axis_Controller s, X s, Y s, Z s, Rx s, Ry s, Rz s, Slider s, Dial
s, Wheel

Check inside memory
main 200 dump

```
4B82 0200:
4B82: 05 49 6E 70 75 74 06 4F 75 74 70 75 74 0A 43 6F   .Input.Output.Co
4B92: 6C 6C 65 63 74 69 6F 6E 07 46 65 61 74 75 72 65   llection.Feature
4BA2: 0D 45 6E 64 43 6F 6C 6C 65 63 74 69 6F 6E 7A 4B   .EndCollectionzK
4BB2: 86 67 6C 6F 62 61 6C 76 4F 00 09 55 73 61 67 65   .globalvO..Usage
4BC2: 50 61 67 65 0E 4C 6F 67 69 63 61 6C 4D 69 6E 69   Page.LogicalMini
4BD2: 6D 75 6D 0E 4C 6F 67 69 63 61 6C 4D 61 78 69 6D   mum.LogicalMaxim
4BE2: 75 6D 0F 50 68 79 73 69 63 61 6C 4D 69 6E 69 6D   um.PhysicalMinim
4BF2: 75 6D 0F 50 68 79 73 69 63 61 6C 4D 61 78 69 6D   um.PhysicalMaxim
4C02: 75 6D 0C 55 6E 75 74 45 78 70 6F 6E 65 6E 74 04   um.UnutExponent.
4C12: 55 6E 69 74 0A 52 65 70 6F 72 74 53 69 7A 65 08   Unit.ReportSize.
4C22: 52 65 70 6F 72 74 49 44 0B 52 65 70 6F 72 74 43   ReportID.ReportC
4C32: 6F 75 6E 74 04 50 75 73 68 03 50 6F 70 20 B2 4B   ount.Push.Pop .K
4C42: 85 6C 6F 63 61 6C 4F 00 05 55 73 61 67 65 0C 55   .localO..Usage.U
4C52: 73 61 67 65 4D 69 6E 69 6D 75 6D 0C 55 73 61 67   sageMinimum.Usag
4C62: 65 4D 61 78 69 6D 75 6D 0F 44 65 73 69 67 6E 61   eMaximum.Designa
4C72: 74 6F 72 49 6E 64 65 78 11 44 65 73 69 67 6E 61   torIndex.Designa
4C82: 74 6F 72 4D 69 6E 69 6D 75 6D 0B 53 74 72 69 6E   torMinimum.Strin
4C92: 67 49 6E 64 65 78 0D 53 74 72 69 6E 67 4D 69 6E   gIndex.StringMin
4CA2: 69 6D 75 6D 0D 53 74 72 69 6E 67 4D 61 78 69 6D   imum.StringMaxim
4CB2: 75 6D 09 44 65 6C 69 6D 69 74 65 72 42 4C 89 41   um.DelimiterBL.A
4CC2: 74 74 72 69 62 75 74 65 4F 00 04 44 61 74 61 08   ttributeO..Data.
4CD2: 43 6F 6E 73 74 61 6E 74 05 41 72 72 61 79 08 56   Constant.Array.V
4CE2: 61 72 69 61 62 6C 65 08 41 62 73 6F 6C 75 74 65   ariable.Absolute
4CF2: 08 52 65 6C 61 74 69 76 65 61 C0 4C 8A 43 6F 6C   .Relativea.L.Col
4D02: 6C 65 63 74 69 6F 6E 72 4F 00 08 50 68 79 73 69   lectionrO..Physi
4D12: 63 61 6C 0B 41 70 70 6C 69 63 61 74 69 6F 6E 07   cal.Application.
4D22: 4C 6F 67 69 63 61 6C 06 52 65 70 6F 72 74 0A 4E   Logical.Report.N
4D32: 61 6D 65 64 41 72 72 61 79 0B 55 73 61 67 65 53   amedArray.UsageS
4D42: 77 69 74 63 68 0D 55 73 61 67 65 4D 6F 64 69 66   witch.UsageModif
4D52: 69 65 72 69 FE 4C 89 55 73 61 67 65 50 61 67 65   ieri.L.UsagePage
4D62: 4F 00 09 55 6E 64 65 66 69 6E 65 64 18 47 65 6E   O..Undefined.Gen
4D72: 65 72 69 63 5F 44 65 73 6B 74 6F 70 5F 43 6F 6E   eric_Desktop_Con
Prop0 Cog6 ok
```

Defining word printing out string

```
\ Print out string
\ ( n1 n2 -- )  n1:index(0,1,2,..,n)  n2:string-array's address
: dispStr
swap dup 0 <>
if
        0 do
                dup C@ + 1+
        loop
else
        drop
then
.cstr
;
```

Print out defined string by 's,'

```
: test 3 main dispStr cr ;     \ Print out index=3 inside 'main' string-array

    Prop0 Cog6 ok
    test
    Feature
    Prop0 Cog6 ok
```

FONT

Reference:
Propeller Manual V1.2 Chapter1 Page31 - Page33
HydraGameDevManual-v1.0.1.pdf Chapter16 Page336 - Page338

Loading Font.f

ROM-font inside propeller is $8000-$BFFF(4096Longs).
1Block-size(including 2characters) is 128byte(32Longs).
All are 128locks(128 X 2characters).
2Character's column(horizon derection) length are 4byte(1Long).
Even character is even dots(b0,2,....b26,b28,b30).
Odd character is odd dots(b1,2,....b27,b29,b31).
2Character's row(vertical derection) length are 32.
Character is 16 X 32pixel.

Word'font1' display combined fonts(odd & even character).

There are "@" and "A" below;   But it cannot see characters.

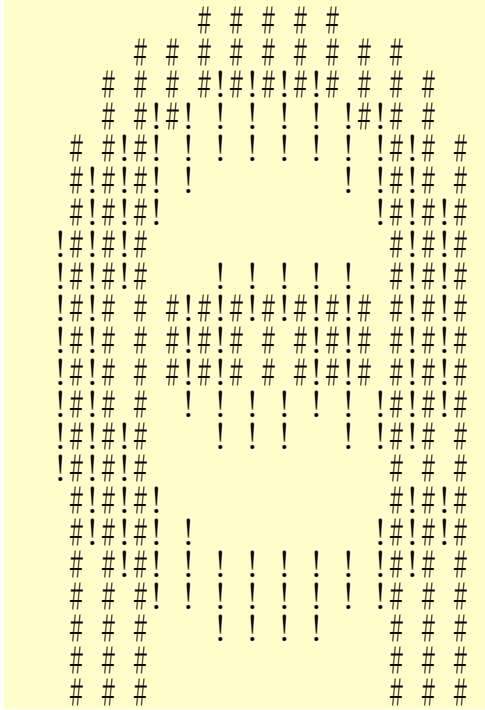
```
Prop0 Cog6 ok
font1


$9000
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 1 0 1 0 1 0 1 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 0 0 0 0 0
0 0 0 0 0 0 0 1 0 1 0 1 0 1 1 1 1 1 1 1 1 1 0 1 0 1 0 1 0 0 0 0
0 0 0 0 0 0 0 1 0 1 1 1 1 0 1 0 1 0 1 0 1 0 1 1 1 1 0 1 0 0 0 0
0 0 0 0 0 1 0 1 1 1 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 1 1 1 0 1 0 0
0 0 0 0 0 1 1 1 1 1 1 0 1 0 0 0 0 0 0 0 0 0 1 0 1 1 1 1 0 1 0 0
0 0 0 0 0 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 0 0
0 0 0 0 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 0 0
0 0 0 0 1 1 1 1 1 1 0 0 0 0 1 0 1 0 1 0 1 0 1 0 0 1 1 1 1 1 0 0
0 0 0 0 1 1 1 1 0 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 0 1 1 1 1 1 0 0
0 0 0 0 1 1 1 1 0 1 0 1 1 1 1 1 0 1 0 1 1 1 1 1 0 1 1 1 1 1 0 0
0 0 0 0 1 1 1 1 0 1 0 1 1 1 1 1 0 1 0 1 1 1 1 1 0 1 1 1 1 1 0 0
0 0 0 0 1 1 1 1 0 1 0 0 1 0 1 0 1 0 1 0 1 0 1 0 1 1 1 1 1 1 0 0
0 0 0 0 1 1 1 1 1 1 0 0 0 0 1 0 1 0 1 0 0 0 1 0 1 1 1 1 0 1 0 0
0 0 0 0 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 1 0 1 0 0 0
0 0 0 0 0 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 0 0
0 0 0 0 0 1 1 1 1 1 1 0 1 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 0 0
0 0 0 0 0 1 0 1 1 1 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 1 1 1 0 1 0 0
0 0 0 0 0 1 0 1 0 1 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 1 0 1 0 1 0 0
0 0 0 0 0 1 0 1 0 1 0 0 0 0 1 0 1 0 1 0 1 0 0 0 0 1 0 1 0 1 0 0
0 0 0 0 0 1 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 1 0 1 0 0
0 0 0 0 0 1 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 1 0 1 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

Word'font2' can watch a little bit even and odd character.

```
Prop0 Cog6 ok
```

font2

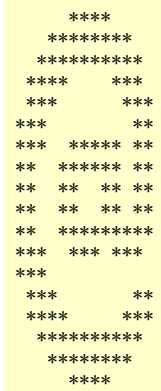
$9000

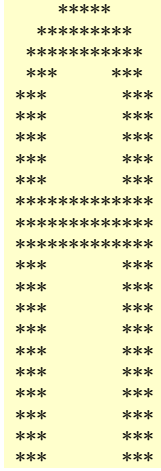


Word'font3' Display even/odd character separately

Prop0 Cog6 ok
font3

$9000





Operating on another cog

When operating code on another cog, cogID is pointed out;
: test 5 0 do i . loop ;
c" test" 5 cogx
Loading auto_cog.f
Automatically, cogID is assigned on demo5;

```
Prop0 Cog6 ok
auto_set_demo
available cogID:5
available cogID:4
available cogID:3
available cogID:2
available cogID:1
available cogID:0
No free Cog
Prop0 Cog6 ok

cogID:0x60543210
Cog:0  #io chan:1                RUNNING TEST-F
Cog:1  #io chan:1                RUNNING TEST-E
Cog:2  #io chan:1                RUNNING TEST-D
Cog:3  #io chan:1                RUNNING TEST-C
Cog:4  #io chan:1                RUNNING TEST-B
Cog:5  #io chan:1                RUNNING TEST-A
Cog:6  #io chan:1 PropForth v5.5 2013Feb20 11:30 0  6(0)->7(0)
Cog:7  #io chan:1                      SERIAL  7(0)->6(0)
Prop0 Cog6 ok

-- Reset specified cog
Prop0 Cog6 ok
1 cog_reset

CON:Prop0 Cog1 RESET - last status: 0 ok

Cog:0  #io chan:1                RUNNING TEST-F
Cog:1  #io chan:1 PropForth v5.5 2013Feb20 11:30 0
Cog:2  #io chan:1                RUNNING TEST-D
Cog:3  #io chan:1                RUNNING TEST-C
Cog:4  #io chan:1                RUNNING TEST-B
Cog:5  #io chan:1                RUNNING TEST-A
Cog:6  #io chan:1 PropForth v5.5 2013Feb20 11:30 0  6(0)->7(0)
Cog:7  #io chan:1                      SERIAL  7(0)->6(0)
cogID:0x50054320
Prop0 Cog6 ok
```

```
  4 cog_reset

  CON:Prop0 Cog4 RESET - last status: 0 ok

  Cog:0  #io chan:1                RUNNING TEST-F
  Cog:1  #io chan:1 PropForth v5.5 2013Feb20 11:30 0
  Cog:2  #io chan:1                RUNNING TEST-D
  Cog:3  #io chan:1                RUNNING TEST-C
  Cog:4  #io chan:1 PropForth v5.5 2013Feb20 11:30 0
  Cog:5  #io chan:1                RUNNING TEST-A
  Cog:6  #io chan:1 PropForth v5.5 2013Feb20 11:30 0  6(0)->7(0)
  Cog:7  #io chan:1                      SERIAL  7(0)->6(0)
  cogID:0x40005320
  Prop0 Cog6 ok

  -- Display each cog's string
  0 cog_string
  RUNNING TEST-F
  Prop0 Cog6 ok
  1 cog_string
  PropForth v5.5 2013Feb20 11:30 0
  Prop0 Cog6 ok
  7 cog_string
  SERIAL
  Prop0 Cog6 ok

-- Reset all cogs --
  all_cog_reset

  CON:Prop0 Cog0 RESET - last status: 0 ok

  CON:Prop0 Cog2 RESET - last status: 0 ok

  CON:Prop0 Cog3 RESET - last status: 0 ok

  CON:Prop0 Cog5 RESET - last status: 0 ok

  Cog:0  #io chan:1 PropForth v5.5 2013Feb20 11:30 0
  Cog:1  #io chan:1 PropForth v5.5 2013Feb20 11:30 0
  Cog:2  #io chan:1 PropForth v5.5 2013Feb20 11:30 0
  Cog:3  #io chan:1 PropForth v5.5 2013Feb20 11:30 0
  Cog:4  #io chan:1 PropForth v5.5 2013Feb20 11:30 0
  Cog:5  #io chan:1 PropForth v5.5 2013Feb20 11:30 0
  Cog:6  #io chan:1 PropForth v5.5 2013Feb20 11:30 0  6(0)->7(0)
  Cog:7  #io chan:1                      SERIAL  7(0)->6(0)
  Prop0 Cog6 ok
```