

## Minimal Spin bootstrap code for assembly language launch

---

```
$0000: HZ HZ HZ HZ CR CS 10 00 LL LL 18 00 18 00 10 00
$0010: FF FF F9 FF FF FF F9 FF 35 37 04 35 2C -- -- --
$0020: your assembly code starts here - loaded into COG #0
```

### elaboration:

```
$0000: HZ HZ HZ HZ - internal clock frequency in Hz (long)
$0004: CR          - value to be written to clock register (byte)
$0005: CS          - checksum so that all RAM bytes will sum to 0
(modulus 256)
$0006: 10 00      - 'pbase' (word) must be $0010
$0008: LL LL      - 'vbase' (word) number of longs loaded times 4
$000A: 18 00      - 'dbase' (word) above where $FFF9FFFF's get placed
$000C: 18 00      - 'pcurr' (word) points to Spin code
$000E: 10 00      - 'dcurr' (word) points to local stack
$0010: FF FF F9 FF - below local stack, must be $FFF9FFFF
$0014: FF FF F9 FF - below local stack, must be $FFF9FFFF
$0018: 35         - push #0 (long written to $0010)
$0019: 37 04      - push #$20 (long written to $0014)
$001B: 35         - push #0 (long written to $0018)
$001C: 2C         - COGINIT(0, $20, 0) - load asm code from $20+ into
same COG #0
$001D: -- -- --   - filler
$0020: XX XX XX XX - 1st long of asm program to be loaded into COG #0
$0024: XX XX XX XX - 2nd long of asm program to be loaded into COG #0
$0028:             - rest of data
```

Note: 'vbase' is the total number of bytes loaded. If valid, the IDE will load the binary file and transfer it to a Propellor.