

Open the watch

<https://www.youtube.com/watch?v=kOKDaPp8oiY>

Mailing list

<https://groups.google.com/forum/#!forum/ti-chronos-development>

Watch

OpenChronos

<https://github.com/poelzi/OpenChronos/>

```
dpavlin@blue:/blue-raidz1/MSP430/Chronos$ git clone git@github.com:poelzi/OpenChronos.git
Cloning into 'OpenChronos'...
remote: Counting objects: 1639, done.
remote: Compressing objects: 100% (907/907), done.
remote: Total 1639 (delta 921), reused 1321 (delta 671)
Receiving objects: 100% (1639/1639), 1.02 MiB | 330.00 KiB/s, done.
Resolving deltas: 100% (921/921), done.
Checking connectivity... done
dpavlin@blue:/blue-raidz1/MSP430/Chronos$ cd OpenChronos/
dpavlin@blue:/blue-raidz1/MSP430/Chronos/OpenChronos$
```

outdated

openchronos-ng

<http://sourceforge.net/p/openchronos-ng/>

```
dpavlin@blue:/blue-raidz1/MSP430/Chronos$ git clone git://git.code.sf.net/p/openchronos-ng/code
Cloning into 'openchronos-ng-code'...
remote: Counting objects: 4088, done.
remote: Compressing objects: 100% (1961/1961), done.
remote: Total 4088 (delta 2930), reused 2831 (delta 2036)
Receiving objects: 100% (4088/4088), 1.31 MiB | 627.00 KiB/s, done.
Resolving deltas: 100% (2930/2930), done.
Checking connectivity... done
dpavlin@blue:/blue-raidz1/MSP430/Chronos$ ls
OpenChronos  openchronos-ng-code
dpavlin@blue:/blue-raidz1/MSP430/Chronos$ cd openchronos-ng-code/
dpavlin@blue:/blue-raidz1/MSP430/Chronos/openchronos-ng-code$ sudo apt-get install python-urwid
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  python-urwid
0 upgraded, 1 newly installed, 0 to remove and 3 not upgraded.
Need to get 731 kB of archives.
After this operation, 2,697 kB of additional disk space will be used.
Get:1 http://ftp.hr.debian.org/debian/ sid/main python-urwid amd64 1.1.1-1+b1 [731 kB]
Fetched 731 kB in 0s (848 kB/s)
Selecting previously unselected package python-urwid.
```

```
(Reading database ... 274572 files and directories currently installed.)
Unpacking python-urwid (from .../python-urwid_1.1.1-1+b1_amd64.deb) ...
Setting up python-urwid (1.1.1-1+b1) ...
```

```
# turn off acceleration module which breaks build
```

```
dpavlin@blue:/blue-raidz1/MSP430/Chronos/openchronos-ng-code$ make config
grep: config.h: No such file or directory
/usr/bin/python2 tools/config.py
```

```
/usr/bin/python2 tools/make_modinit.py
```

```
# build
```

```
dpavlin@blue:/blue-raidz1/MSP430/Chronos/openchronos-ng-code$ make
Generating dependencies..
/bin/sh: 1: makedepend: not found
CC modinit.c
-e
>> Building openchronos.elf as target RELEASE
/usr/bin/python2 tools/memory.py -i openchronos.elf -o openchronos.txt
ELF section .text at 0x8000 14972 bytes
ELF section .rodata at 0xba7c 512 bytes
ELF section .data at 0xbc7c 216 bytes
ELF section .vectors at 0xff80 128 bytes
convert to TI Hex
```

Links

<http://processors.wiki.ti.com/index.php/EZ430-Chronos>

AP dongle BM-USBD4-V1.1

New, white one with M430F5509 and CC1101

<http://www.ti.com/product/msp430f5509>

```
[33569.199972] usb 3-1.2.3: USB disconnect, device number 7
[38564.358606] usb 3-1.1: new full-speed USB device number 8 using ehci-pci
[38564.453766] usb 3-1.1: New USB device found, idVendor=2047, idProduct=0340
[38564.453780] usb 3-1.1: New USB device strings: Mfr=1, Product=2, SerialNumber=3
[38564.453783] usb 3-1.1: Product: eZ430-ChronosAP
[38564.453785] usb 3-1.1: Manufacturer: Texas Instruments
[38564.453787] usb 3-1.1: SerialNumber: F5BF93460A000B00
[38564.466959] cdc_acm 3-1.1:1.0: This device cannot do calls on its own. It is not a modem.
[38564.466984] cdc_acm 3-1.1:1.0: ttyACM0: USB ACM device
[38564.467400] usbcore: registered new interface driver cdc_acm
[38564.467402] cdc_acm: USB Abstract Control Model driver for USB modems and ISDN adapters
```

Debugger MSP-eZ430U

```
[47106.422402] usb 3-1.1: new full-speed USB device number 10 using ehci-pci
[47106.537358] usb 3-1.1: New USB device found, idVendor=0451, idProduct=f432
[47106.537363] usb 3-1.1: New USB device strings: Mfr=1, Product=2, SerialNumber=3
[47106.537366] usb 3-1.1: Product: Texas Instruments MSP-FET430UIF
[47106.537369] usb 3-1.1: Manufacturer: Texas Instruments
[47106.537371] usb 3-1.1: SerialNumber: EDFF41CE960B3D18
[47106.543217] cdc_acm 3-1.1:1.0: This device cannot do calls on its own. It is not a modem.
[47106.543222] cdc_acm 3-1.1:1.0: No union descriptor, testing for castrated device
[47106.543241] cdc_acm 3-1.1:1.0: ttyACM0: USB ACM device
[47109.197929] hid-generic 0003:0451:F432.0004: hiddev0,hidraw3: USB HID v1.01 Device [Texas Inst
[47109.548548] usb 3-1.1: USB disconnect, device number 10
[47110.260115] usb 3-1.1: new full-speed USB device number 11 using ehci-pci
[47110.375589] usb 3-1.1: New USB device found, idVendor=0451, idProduct=f432
[47110.375594] usb 3-1.1: New USB device strings: Mfr=1, Product=2, SerialNumber=3
[47110.375597] usb 3-1.1: Product: Texas Instruments MSP-FET430UIF
[47110.375599] usb 3-1.1: Manufacturer: Texas Instruments
[47110.375601] usb 3-1.1: SerialNumber: EDFF41CE960B3D18
[47110.381368] cdc_acm 3-1.1:1.0: This device cannot do calls on its own. It is not a modem.
[47110.381373] cdc_acm 3-1.1:1.0: No union descriptor, testing for castrated device
[47110.381399] cdc_acm 3-1.1:1.0: ttyACM0: USB ACM device
[47120.132638] hid-generic 0003:0451:F432.0005: hiddev0,hidraw3: USB HID v1.01 Device [Texas Inst
[47303.482869] usb 3-1.1: USB disconnect, device number 11
[47304.191698] usb 3-1.1: new full-speed USB device number 12 using ehci-pci
[47304.306763] usb 3-1.1: New USB device found, idVendor=0451, idProduct=f432
[47304.306767] usb 3-1.1: New USB device strings: Mfr=1, Product=2, SerialNumber=3
[47304.306770] usb 3-1.1: Product: Texas Instruments MSP-FET430UIF
[47304.306772] usb 3-1.1: Manufacturer: Texas Instruments
[47304.306774] usb 3-1.1: SerialNumber: EDFF41CE960B3D18
[47304.312539] cdc_acm 3-1.1:1.0: This device cannot do calls on its own. It is not a modem.
[47304.312554] cdc_acm 3-1.1:1.0: No union descriptor, testing for castrated device
[47304.312575] cdc_acm 3-1.1:1.0: ttyACM0: USB ACM device
[47314.353996] hid-generic 0003:0451:F432.0006: usb_submit_urb(ctrl) failed: -1
[47314.354020] hid-generic 0003:0451:F432.0006: timeout initializing reports
[47314.354185] hid-generic 0003:0451:F432.0006: hiddev0,hidraw3: USB HID v1.01 Device [Texas Inst
```

- debugging with MSP-eZ430U directly?
http://e2e.ti.com/support/low_power_rf/f/155/p/252352/1011359.aspx#1011359
- remove battery when debugging?
<http://e2e.ti.com/support/microcontrollers/msp430/f/166/t/265185.aspx>

sending data

<https://github.com/ApertureLabsLtd/ChronIC>