

Watchdog on Linux/Ubuntu

Background

Watchdog timers are commonly found in embedded systems and other computer-controlled equipment where humans cannot easily access the equipment or would be unable to react to faults in a timely manner. In such systems, the computer cannot depend on a human to reboot it if it hangs; it must be self-reliant.

Odroid C1/C1+ support watchdog driver **aml_wdt** to control the PMU.

Test Watchdog module

Watchdog driver `aml_wdt` is configurable for Odroid C1/C1+.

You should be able to see `/dev/watchdog` and `/dev/watchdog0` device files being created.

```
odroid@odroid:~$ ls -la /dev/watchdog*
crw----- 1 root root  10, 130 Oct 30 17:28 /dev/watchdog
crw----- 1 root root 250,   0 Oct 30 17:28 /dev/watchdog0
odroid@odroid:~$
```

Watchdog daemon will trigger and reboot if we access the device file manually.

```
# cat /dev/watchdog
[ 7639.726211] watchdog watchdog0: watchdog did not stop!
```

To manually stop watchdog to reboot.

```
# echo V > /dev/watchdog
```

Install Watchdog daemon

To install watchdog daemon

```
sudo apt-get install watchdog
```

Create dir for watchdog logs files

```
sudo mkdir -p /var/log/watchdog
```

Watchdog demon configuration files

You need to edit the **/etc/watchdog.conf** file to un-comment and so actually use the **/dev/watchdog** device access to the module. Otherwise the watchdog will not use the hardware and rely only on its internal code to soft-reboot a broken machine.

```
$ cat /etc/watchdog.conf
#ping                = 172.31.14.1
#ping                = 172.26.1.255
#interface           = eth0
#file                = /var/log/messages
#change              = 1407

# Uncomment to enable test. Setting one of these values to '0' disables it.
# These values will hopefully never reboot your machine during normal use
# (if your machine is really hung, the loadavg will go much higher than 25)
#max-load-1          = 24
#max-load-5          = 18
#max-load-15         = 12

# Note that this is the number of pages!
# To get the real size, check how large the pagesize is on your machine.
#min-memory          = 1

#repair-binary       = /usr/sbin/repair
#repair-timeout      =
#test-binary         =
#test-timeout        =

watchdog-device = /dev/watchdog

# Defaults compiled into the binary
#temperature-device =
#max-temperature    = 120

# Defaults compiled into the binary
admin              = root
interval           = 1
logtick            = 1
log-dir            = /var/log/watchdog

# This greatly decreases the chance that watchdog won't be scheduled before
# your machine is really loaded
realtime           = yes
priority           = 1

# Check if rsyslogd is still running by enabling the following line
pidfile            = /var/run/rsyslogd.pid
```

```
# set watchdog timer
watchdog-timeout      = 15
```

For more configuration please follow link below.

<http://www.sat.dundee.ac.uk/psc/watchdog/watchdog-configure.html>

Start Watchdog Service and Verify

```
root@odroid:~# service watchdog status
* watchdog is running
root@odroid:~#
```

Once the watchdog demon is configures then it tries to continuously try to reset the watchdog timer.

Another way to test watchdog device is working under watchdog demon.

```
root@odroid:~#
root@odroid:~# pkill -9 watchdog
root@odroid:~# [ 2452.972630@0] watchdog watchdog0: watchdog did not stop!
QA5:A;SVN:B72;POC:17F;STS:0;BOOT:0;INIT:10;BOOT:1;INIT:0;READ:0;CHECK:0;PASS
:1;

-----
Welcome to Hardkernel's ODR0ID-C... (Built at 19:33:00 Dec 8 2014) *
-----
CPU : AMLogic S805
MEM : 1024MB (DDR3@792MHz)
BID : HKC1310001
S/N : HKC11122F37DF492
0x00000009f
check SD_boot_type:0x1 card_type:0x1
Loading U-boot...success.
```

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Permanent link:

http://wiki.odroid.com/odroid-c1/application_note/software/watchdog_timer

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