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WatchDog Timer による監視

MA-E3xx シリーズでは `Hardware Watchdog Timer driver` を組み込んでいます。
`watchdog` パッケージにより、簡単な設定で Watchdog Timer を利用することができます。

```
root@plum:~# dpkg -l watchdog|cat
Desired=Unknown/Install/Remove/Purge/Hold
| Status=Not/Inst/Conf-files/Unpacked/halF-conf/Half-inst/trig-aWait/Trig-
pend
|/ Err?=(none)/Reinst-required (Status,Err: uppercase=bad)
||/ Name                               Version
Architecture Description
+++-----
-----
ii  watchdog                               5.13-1
armhf      system health checker and software/hardware watchdog handler
```

設定

有効化

daemon 起動の設定

有効化するために `/etc/default/watchdog` ファイルを編集します。

```
root@plum:~# nano -w /etc/default/watchdog
```

watchdog

```
# Start watchdog at boot time? 0 or 1
run_watchdog=1
# Load module before starting watchdog
watchdog_module="none"
# Specify additional watchdog options here (see manpage).
```

`run_watchdog` を 1 にします。

設定ファイルの編集

`/etc/watchdog.conf` を編集します。

```
#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
```

変更点

```
root@plum:~# diff -u /ro/etc/watchdog.conf /etc/watchdog.conf
--- /ro/etc/watchdog.conf 2013-02-01 20:15:44.000000000 +0900
+++ /etc/watchdog.conf 2017-07-12 16:48:04.731702357 +0900
@@ -20,7 +20,7 @@
 #test-binary =
```

```
#test-timeout      =  
  
-#watchdog-device  = /dev/watchdog  
+#watchdog-device  = /dev/watchdog  
  
# Defaults compiled into the binary  
#temperature-device  =
```

自動起動設定

MA-E3xx の起動時に自動で実行するように設定します。

```
root@plum:~# update-rc.d watchdog enable  
update-rc.d: warning: start runlevel arguments (none) do not match watchdog  
Default-Start values (2 3 4 5)  
update-rc.d: warning: stop runlevel arguments (none) do not match watchdog  
Default-Stop values (0 1 6)  
Enabling system startup links for /etc/init.d/watchdog ...  
Removing any system startup links for /etc/init.d/watchdog ...  
  /etc/rc0.d/K11watchdog  
  /etc/rc1.d/K11watchdog  
  /etc/rc2.d/S89watchdog  
  /etc/rc3.d/S89watchdog  
  /etc/rc4.d/S89watchdog  
  /etc/rc5.d/S89watchdog  
  /etc/rc6.d/K11watchdog  
Adding system startup for /etc/init.d/watchdog ...  
  /etc/rc0.d/K11watchdog -> ../init.d/watchdog  
  /etc/rc1.d/K11watchdog -> ../init.d/watchdog  
  /etc/rc6.d/K11watchdog -> ../init.d/watchdog  
  /etc/rc2.d/S89watchdog -> ../init.d/watchdog  
  /etc/rc3.d/S89watchdog -> ../init.d/watchdog  
  /etc/rc4.d/S89watchdog -> ../init.d/watchdog  
  /etc/rc5.d/S89watchdog -> ../init.d/watchdog  
root@plum:~#
```

```
root@plum:~# ls /etc/rc2.d/  
K59apcupsd  S09wd_keepalive  S20ddclient  S20redis-server  S70dns-clean  
S89watchdog  
K80hostapd  S15dnsmasq       S20firewalld  S20smstools      S70pppd-dns  
S99rc.local  
README      S19cpufrequtils  S20nginx      S23ntp           S75sudo  
root@plum:~#
```

S89watchdog の symbolic link が作られていることが確認できます。

(手動での)起動

起動させてみます。

```
root@plum:~# /etc/init.d/watchdog start
* Stopping watchdog keepalive daemon...
[ OK ]
* Starting watchdog daemon...
[ OK ]
root@plum:~#
```

syslog に下記のように出力され、watchdog daemon が起動したことが確認できます。

```
Jul 20 11:26:57 plum watchdog[11594]: stopping daemon (5.13)
Jul 20 11:27:02 plum wd_keepalive[11750]: starting watchdog keepalive daemon
(5.13):
Jul 20 11:27:02 plum wd_keepalive[11750]: int=10 alive=/dev/watchdog
realtime=yes
Jul 20 11:27:02 plum wd_keepalive[11750]: hardware watchdog identity: OMAP
Watchdog
```

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