

RouterBoard-specific functions

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This document applies to V2.8

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General Information

Summary

There are some features used to configure specific functions exist only in RouterBOARD 200 series:

- BIOS upgrading
- BIOS configuration
- Health monitoring
- LED control (may be used in scripting)
- Fan voltage control (on/off)

- Console reset jumper

Specifications

Packages required: *routerboard*

License required: *level1*

Home menu level: */system routerboard*

Hardware usage: *works only on RouterBOARD platform*

BIOS upgrading

Home menu level: */system routerboard*

Description

The BIOS is needed to recognize all the hardware and boot the system up. Newer BIOS versions might have support for more hardware, so it's generally a good idea to upgrade the BIOS once a newer version is available.

The newest versions of BIOS firmware is included in the newest **routerboard** software package. BIOS firmware may also be uploaded to router's FTP server (the file is called **wlb-bios.rom**). This way, for example, BIOS firmware may be transferred from one router to another.

Property Description

current-firmware (*read-only: text*) - the version and build date of the BIOS already flashed

routerboard (*read-only: yes | no*) - whether the motherboard has been detected as a RouterBOARD

upgrade-firmware (*read-only: text*) - the version and build date of the BIOS that is available for flashing

Command Description

upgrade - write the uploaded firmware to the BIOS (asks confirmation, and then reboots the router)

Example

To check the current and available firmware version numbers:

```
[admin@MikroTik] > system routerboard print
routerboard: yes
current-firmware: "1.0.8 (Oct/03/2003 08:50:48)"
upgrade-firmware: "1.0.8 (Oct/17/2003 19:06:26)"
[admin@MikroTik] >
```

To upgrade the BIOS version:

```
[admin@MikroTik] > system routerboard upgrade
Firmware upgrade requires reboot of the router. Continue? [y/n] y
Firmware upgrade can take up to 20s. Do NOT turn off the power!
```

BIOS Configuration

Home menu level: */system routerboard bios*

Description

In addition to BIOS own setup possibilities, it is possible to configure BIOS parameters in RouterOS condole

Property Description

baud-rate (*1200 | 2400 | 4800 | 9600 | 19200 | 38400 | 57600 | 115200*; default: **9600**) - initial bitrate of the onboard serial port

beep-on-boot (yes | no; default: **yes**) - whether to beep during boot procedure (to indicate that it has succeeded)

boot-delay (*time: 0s..10s*; default: **1s**) - how much time to wait for a key storke while booting

debug-level (*none | low | high*) - BIOS output debug level

- **none** - no debugging output
- **low** - show only some debugging information
- **high** - show all debugging information about the boot process

memory-settings (*optimal | fail-safe*; default: **optimal**) - specifies how the RouterBoard will use the memory

memory-test (yes | no; default: **no**) - whether to testall the RAM during boot procedure. Regardless of the choice, hte first megabyte of the RAM will be tested anyway. Enabling this option may cause longer boot process

vga-to-serial (yes | no; default: **yes**) - whether to map VGA output to the serial console. Should be enabled if working via serial terminal (gives much more output)

Example

To set high debug level with RAM test:

```
[admin@MikroTik] > system routerboard bios print
  baud-rate: 9600
  debug-level: low
  boot-delay: 1s
  beep-on-boot: yes
  vga-to-serial: yes
  memory-test: no
[admin@MikroTik] > system routerboard bios set debug-level=high ram-test=yes
[admin@MikroTik] > system routerboard bios print
  baud-rate: 9600
  debug-level: high
  boot-delay: 1s
  beep-on-boot: yes
  vga-to-serial: yes
  memory-test: yes
[admin@MikroTik] >
```

System Health Monitoring

Home menu level: */system routerboard health*

Description

LM87 health controller chip provides some measurements of temperature and voltage. Information becomes available not sooner than 2 minutes after boot up. It is not available if LM87 chip is not detected successfully. All values are 10 second averages, with short peak values ignored as likely read errors

Property Description

12v - +12V power line voltage

3.3v - +3.3V power line voltage

5v - +5V power line voltage

board-temp - temperature of the PCI area

core - CPU core voltage

cpu-temp - temperature of the CPU area

lm87-temp - temperature of the LM87 chip

state (*read-only: enabled | disabled*; default: **disabled**) - the current state of health monitoring (whether it is enabled or not)

state-after-reboot (*enabled | disabled*; default: **disabled**) - the state of the health monitor after the reboot

Notes

You cannot change state on the fly, just control, whether the health control will be enabled after reboot

All temperature values are in Celsius degrees

Example

To check system health:

```
[admin@MikroTik] > /system routerboard health print
      core: 1.8
      3.3v: 3.3
      5v: 5.02
      12v: 12.25
      lm87-temp: 33
      cpu-temp: 33
      board-temp: 26
      state: enabled
      state-after-reboot: enabled
[admin@MikroTik] >
```

LED Management

Command name: *:led*

Description

The four user LEDs of the RouterBOARD can be controlled from user-space scripts.

Property Description

led1 (yes | no; default: **no**) - whether the LED1 is on

led2 (yes | no; default: **no**) - whether the LED2 is on

led3 (yes | no; default: **no**) - whether the LED3 is on

led4 (yes | no; default: **no**) - whether the LED3 is on

length (*time*; default: **0s**) - how long to hold the given combination

- **0s** - no limit

Notes

The command does not imply a pause in execution. It works asynchronously, allowing execution to continue just after the command was entered, not waiting for LEDs to switch off.

After the given time (**length** property) the LEDs will return to the default (off) condition.

Any new **:led** command overrides the the previous state and resets the LED state after the **length** time interval.

Example

To turn LED1 on for a minute:

```
[admin@MikroTik] > :led led1=yes length=1m
[admin@MikroTik] >
```

Fan voltage control

Command name: */system routerboard fan-control*

Description

Starting with version 2.8.18 you can control, whether the J11 fan 5V voltage output is enabled. This feature will only work with newest BIOS versions. This is useful in scripts to control some devices attached to the J11 connector.

Property Description

length (*time*; default: **0**) - how long to hold the set state value, and then return to the previous state

- **0** - leave the state in the set mode until restart

state (yes | no) - whether to enable the 5V output on pins 1-2 of the J11 header

Console Reset Jumper

Description

The J16 jumper on the RouterBOARD may be used as serial console reset pin. If it held short for at least 10 seconds, then:

- Serial console configuration is reset
- Serial port that serial console will pick by default (usually serial0) is set to 9600 baud 8 bit 1 stop bit no parity (default settings after installation)
- Special flag that prevents any other program except serial console to acquire this port is set
- Router is rebooted