Prepoznavanje sklopovlja: podaci iz BIOS-a


Otkrivajući informacije o komponentama računala, sistemca će zanimati i one koje su upisane u BIOS. Pri tome će mu pomoći naredba *dmidecode*, koja je napisana kako bi pružila "informacije o hardveru upisane u BIOS prema SMBIOS/DMI [1] standardu". Radi se o proširenju BIOS-a koji bi trebao olakšati posao upravljačkim programima i smanjiti potrebu za rutinama čija je funkcija prepoznavnje hardvera.

Tu su obično podaci o proizvođaču računala, ime i serijski broj modela, verzija BIOS-a i slično. Ponekad ćete tu naći podatke o statusu CPU socketa, utora za proširenja (AGP, PCI..), popunjenosti memorijskih utora i listu ulazno/izlaznih portova (serijskih, paralelnih, USB...). No ispravnost tih informacija ovisi o proizvođaču računala. Nažalost, nisu svi proizvođači računala ozbiljno shvatili svoje obaveze, pa točnost podataka varira od proizvođača do proizvođača, čak i od modela do modela. BIOS bi trebao sadržavati informacije koje omogućuju operacijskim sustavima pokretanje i inicijalizaciju hardvera, no nažalost ponekad Linuxov kernel mora zanemariti te informacije ili ih sam provjeravati. No čak i sumnjajući u te informacije, ipak ćemo ih pogledati nadajući se da ćemo naći nešto korisno.

DMI standard grupira informacije prema zadanim tipovima:

```
       Type   Information
????????????????????????????????????????????
          0   BIOS
          1   System
          2   Baseboard
          3   Chassis
          4   Processor
          5   Memory Controller
          6   Memory Modul
          7   Cache
          8   Port Connector
          9   System Slots
         10   On Board Devices
         11   OEM Strings
         12   System Configuration Options
         13   BIOS Language
         14   Group Associations
         15   System Event Log
         16   Physical Memory Array
         17   Memory Device
         18   32-bit Memory Error
         19   Memory Array Mapped Address
         20   Memory Device Mapped Address
         21   Built-in Pointing Device
         22   Portable Battery
         23   System Reset
         24   Hardware Security
         25   System Power Controls
         26   Voltage Probe
         27   Cooling Device
```

```
        28   Temperature Probe
        29   Electrical Current Probe
        30   Out-of-band Remote Access
        31   Boot Integrity Services
        32   System Boot
        33   64-bit Memory Error
        34   Management Device
        35   Management Device Component
        36   Management Device Threshold Data
        37   Memory Channel
        38   IPMI Device
        39   Power Supply
        40   Additional Information
        41   Onboard Devices Extended Information
        42   Management Controller Host Interface
```

Ako napišete naredbu *dmidecode* bez parametara, dobit ćete sve podatke upisane u SMBIOS. Informacije o samom BIOS-u su na početku, type 0:

```
$ dmidecode -t 0
Handle 0x0000, DMI type 0, 24 bytes
BIOS Information
        Vendor: American Megatrends Inc.
        Version: 1102
        Release Date: 01/30/2007
        Address: 0xF0000
        Runtime Size: 64 kB
        ROM Size: 1024 kB
        Characteristics:
                ISA is supported
                PCI is supported
                PNP is supported
                APM is supported
                BIOS is upgradeable
                BIOS shadowing is allowed
                ESCD support is available
                Boot from CD is supported
                Selectable boot is supported
                BIOS ROM is socketed
                EDD is supported
                5.25"/1.2 MB floppy services are supported (int 13h)
                3.5"/720 kB floppy services are supported (int 13h)
                3.5"/2.88 MB floppy services are supported (int 13h)
                Print screen service is supported (int 5h)
                8042 keyboard services are supported (int 9h)
                Serial services are supported (int 14h)
                Printer services are supported (int 17h)
                CGA/mono video services are supported (int 10h)
                ACPI is supported
                USB legacy is supported
                LS-120 boot is supported
                ATAPI Zip drive boot is supported
                BIOS boot specification is supported
                Targeted content distribution is supported
        BIOS Revision: 8.12
```

Informacije o matičnoj ploči, type 2:

```
Handle 0x0002, DMI type 2, 15 bytes
Base Board Information
        Manufacturer: ASUSTeK Computer INC.
        Product Name: P5B
        Version: Rev 1.xx
        Serial Number: MB-1234567890
        Asset Tag: To Be Filled By O.E.M.
        Features:
                Board is a hosting board
                Board is replaceable
        Location In Chassis: To Be Filled By O.E.M.
        Chassis Handle: 0x0003
        Type: Motherboard
        Contained Object Handles: 0
```

Ako vas zanima samo procesor, upit će izgledati ovako:

```
$ dmidecode -t 4
```

Evo i upitao ugrađenoj RAM memoriji:

```
$ sudo dmidecode -t 17
# dmidecode 2.11
SMBIOS 2.6 present.
Handle 0x0005, DMI type 17, 27 bytes
Memory Device
    Array Handle: 0x0004
    Error Information Handle: Not Provided
    Total Width: 64 bits
    Data Width: 64 bits
    Size: 2048 MB
    Form Factor: SODIMM
    Set: None
    Locator: Bottom-Slot 1(left)
    Bank Locator: BANK 0
    Type: DDR3
    Type Detail: Synchronous
    Speed: 1333 MHz
    Manufacturer: Ramaxel
    Serial Number: 431E6C04
    Asset Tag: Unknown
    Part Number: RMT3010EC58E8F1333

Handle 0x0007, DMI type 17, 27 bytes
Memory Device
    Array Handle: 0x0004
    Error Information Handle: Not Provided
    Total Width: 64 bits
    Data Width: 64 bits
    Size: 2048 MB
    Form Factor: SODIMM
    Set: None
    Locator: Bottom-Slot 2(right)
    Bank Locator: BANK 2
    Type: DDR3
    Type Detail: Synchronous
```

```
    Speed: 1333 MHz
    Manufacturer: Ramaxel
    Serial Number: 433E6C04
    Asset Tag: Unknown
    Part Number: RMT3010EC58E8F1333
```

Popunjena su dva utora s "keksima" od po 2 GB 64 bitne DDR3 memorije koja radi na 1333 MHz.

Ponešto o bateriji notebooka saznat ćete ovako:

```
$ sudo dmidecode -t 22
# dmidecode 2.11
SMBIOS 2.6 present.
Handle 0x0014, DMI type 22, 26 bytes
Portable Battery
    Location: Primary
    Manufacturer: 32STL-SD20S
    Name: OT06039
    Design Capacity: 3600 mWh
    Design Voltage: 10800 mV
    SBDS Version: 1.1
    Maximum Error: Unknown
    SBDS Serial Number: 0A41
    SBDS Manufacture Date: 2011-03-02
    SBDS Chemistry: LION
    OEM-specific Information: 0x00000000
```

Na kraju, evo i malo egzotike. IBM i Lenovo upisuju takozvane "vitalne podatke o proizvodu" (Vital product data), koje možete pronaći naredbom *vpddecode.* Trebalo bi tek provjeriti da li to radi na svim modelima spomenutog proizvođača.

```
$ vpddecode
```

Compaqov BIOS dozvoljava da se upišu podaci o vlasniku, koje možete pogledati naredbom:

```
$ ownership
```

Nije zgorega provjeriti kome je računalo pripadalo, zar ne? :)

Ukratko, MSBIOS/DMI stanadard je uveden kako bi proizvođači računala tu upisivali podatke o svom sklopovlju. No oni nisu uvijek dosljedni u tome, pa ćemo se ponekad razočarati. U svakom slučaju, naredba *dmidecode* sistemcu može biti izuzetna pomoć, pod uvjetom da je nauči koristiti "sa zrnom soli".

Vezani članci:

Prepoznavanje sklopovlja računala [2]

Prepoznavanje sklopovlja: naredba lspci [3]

pet, 2013-06-28 09:36 - Aco Dmitrović**Kuharice:** Linux [4]
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Source URL: https://sysportal.carnet.hr./node/1287

Links
[1] http://www.dmtf.org/standards/smbios
[2] https://sysportal.carnet.hr./node/1286
[3] https://sysportal.carnet.hr./node/1290
[4] https://sysportal.carnet.hr./taxonomy/term/17
[5] https://sysportal.carnet.hr./taxonomy/term/24