

BIOSDECODE**NAME**

biosdecode – BIOS information decoder

SYNOPSIS

biosdecode [**OPTIONS**]

DESCRIPTION

biosdecode parses the BIOS memory and prints information about all structures (or entry points) it knows of. Currently known entry point types are:

- SMBIOS (System Management BIOS)
Use **dmidecode** for a more detailed output.
- DMI (Desktop Management Interface, a legacy version of SMBIOS)
Use **dmidecode** for a more detailed output.
- SYSID
- PNP (Plug and Play)
- ACPI (Advanced Configuration and Power Interface)
- BIOS32 (BIOS32 Service Directory)
- PIR (PCI IRQ Routing)
- 32OS (BIOS32 Extension, Compaq-specific)
See **ownership** for a Compaq ownership tag retrieval tool.
- SNY (Sony-specific, not decoded)
- VPD (Vital Product Data, IBM-specific)
Use **vpddecode** for a more detailed output.
- FJKEYINF (Application Panel, Fujitsu-specific)

biosdecode started its life as a part of **dmidecode** but as more entry point types were added, it was moved to a different program.

OPTIONS

-d, --dev-mem FILE

Read memory from device **FILE** (default: **/dev/mem**)

-h, --help

Display usage information and exit

-V, --version

Display the version and exit

FILES

/dev/mem

BUGS

Most of the time, **biosdecode** prints too much information (you don't really care about addresses) or not enough (because it doesn't follow pointers and has no lookup tables).

AUTHORS

Alan Cox, Jean Delvare

SEE ALSO

dmidecode(8), **mem**(4), **ownership**(8), **vpddecode**(8)

DMIDECODE

NAME

dmidecode – DMI table decoder

SYNOPSIS

dmidecode [**OPTIONS**]

DESCRIPTION

dmidecode is a tool for dumping a computer's DMI (some say SMBIOS) table contents in a human-readable format. This table contains a description of the system's hardware components, as well as other useful pieces of information such as serial numbers and BIOS revision. Thanks to this table, you can retrieve this information without having to probe for the actual hardware. While this is a good point in terms of report speed and safeness, this also makes the presented information possibly unreliable.

The DMI table doesn't only describe what the system is currently made of, it also can report the possible evolutions (such as the fastest supported CPU or the maximal amount of memory supported).

SMBIOS stands for System Management BIOS, while DMI stands for Desktop Management Interface. Both standards are tightly related and developed by the DMTF (Desktop Management Task Force).

As you run it, **dmidecode** will try to locate the DMI table. If it succeeds, it will then parse this table and display a list of records like this one:

Handle 0x0002, DMI type 2, 8 bytes. Base Board Information

Manufacturer: Intel

Product Name: C440GX+

Version: 727281-001

Serial Number: INCY92700942

Each record has:

- A handle. This is a unique identifier, which allows records to reference each other. For example, processor records usually reference cache memory records using their handles.
- A type. The SMBIOS specification defines different types of elements a computer can be made of. In this example, the type is 2, which means that the record contains "Base Board Information".
- A size. Each record has a 4-byte header (2 for the handle, 1 for the type, 1 for the size), the rest is used by the record data. This value doesn't take text strings into account (these are placed at the end of the record), so the actual length of the record may be (and is often) greater than the displayed value.
- Decoded values. The information presented of course depends on the type of record. Here, we learn about the board's manufacturer, model, version and serial number.

OPTIONS

-d, --dev-mem FILE

Read memory from device **FILE** (default: **/dev/mem**)

-q, --quiet

Be less verbose. Unknown, inactive and OEM-specific entries are not displayed. Meta-data and handle references are hidden.

-s, --string KEYWORD

Only display the value of the DMI string identified by **KEYWORD**. **KEYWORD** must be a keyword from the following list: **bios-vendor**, **bios-version**, **bios-release-date**, **system-manufacturer**, **system-product-name**, **system-version**, **system-serial-number**, **system-uuid**, **baseboard-manufacturer**, **baseboard-product-name**, **baseboard-version**, **baseboard-serial-number**, **baseboard-asset-tag**, **chassis-manufacturer**, **chassis-type**, **chassis-version**, **chassis-serial-number**, **chassis-asset-tag**, **processor-family**, **processor-manufacturer**, **processor-version**, **processor-frequency**. Each keyword corresponds to a given DMI type and a

given offset within this entry type. Not all strings may be meaningful or even defined on all systems. Some keywords may return more than one result on some systems (e.g. **processor-version** on a multi-processor system). If **KEYWORD** is not provided or not valid, a list of all valid keywords is printed and **dmidecode** exits with an error. This option cannot be used more than once.

-t, --type TYPE

Only display the entries of type **TYPE**. **TYPE** can be either a DMI type number, or a comma-separated list of type numbers, or a keyword from the following list: **bios, system, baseboard, chassis, processor, memory, cache, connector, slot**. Refer to the DMI TYPES section below for details. If this option is used more than once, the set of displayed entries will be the union of all the given types. If **TYPE** is not provided or not valid, a list of all valid keywords is printed and **dmidecode** exits with an error.

-u, --dump

Do not decode the entries, dump their contents as hexadecimal instead. Note that this is still a text output, no binary data will be thrown upon you. The strings attached to each entry are displayed as both hexadecimal and ASCII. This option is mainly useful for debugging.

--dump-bin FILE

Do not decode the entries, instead dump the DMI data to a file in binary form. The generated file is suitable to pass to **--from-dump** later.

--from-dump FILE

Read the DMI data from a binary file previously generated using **--dump-bin**.

-h, --help

Display usage information and exit

-V, --version

Display the version and exit

Options **--string**, **--type** and **--dump-bin** determine the output format and are mutually exclusive.

DMI TYPES

The SMBIOS specification defines the following DMI types:

Type	Information
0	BIOS
1	System
2	Base Board
3	Chassis
4	Processor
5	Memory Controller
6	Memory Module
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 Device

Additionally, type 126 is used for disabled entries and type 127 is an end-of-table marker. Types 128 to 255 are for OEM-specific data. **dmidecode** will display these entries by default, but it can only decode them when the vendors have contributed documentation or code for them.

Keywords can be used instead of type numbers with **--type**. Each keyword is equivalent to a list of type numbers:

Keyword	Types
bios	0, 13
system	1, 12, 15, 23, 32
baseboard	2, 10, 41
chassis	3
processor	4
memory	5, 6, 16, 17
cache	7
connector	8
slot	9

Keywords are matched case-insensitively. The following command lines are equivalent:

- `dmidecode --type 0 --type 13`
- `dmidecode --type 0,13`
- `dmidecode --type bios`
- `dmidecode --type BIOS`

BINARY DUMP FILE FORMAT

The binary dump files generated by `--dump-bin` and read using `--from-dump` are formatted as follows:

- The SMBIOS or DMI entry point is located at offset 0x00. It is crafted to hard-code the table address at offset 0x20.
- The DMI table is located at offset 0x20.

FILES

`/dev/mem`

BUGS

More often than not, information contained in the DMI tables is inaccurate, incomplete or simply wrong.

DMIDECODE(8)

DMIDECODE(8)

AUTHORS

Alan Cox, Jean Delvare

SEE ALSO

biosdecode(8), mem(4), ownership(8), vpddecode(8)

OWNERSHIP

NAME

ownership – Compaq ownership tag retriever

SYNOPSIS

ownership [**OPTIONS**]

DESCRIPTION

ownership retrieves and prints the "ownership tag" that can be set on Compaq computers. Contrary to all other programs of the **dmidecode** package, **ownership** doesn't print any version information, nor labels, but only the raw ownership tag. This should help its integration in scripts.

OPTIONS

-d, --dev-mem FILE

Read memory from device **FILE** (default: **/dev/mem**)

-h, --help

Display usage information and exit

-V, --version

Display the version and exit

FILES

/dev/mem

AUTHOR

Jean Delvare

SEE ALSO

biosdecode(8), **dmidecode(8)**, **mem(4)**, **vpddecode(8)**

VPDDECODE

NAME

vpddecode – VPD structure decoder

SYNOPSIS

vpddecode [**OPTIONS**]

DESCRIPTION

vpddecode prints the "vital product data" information that can be found in almost all IBM and Lenovo computers. Available items are:

- BIOS Build ID
- Box Serial Number
- Motherboard Serial Number
- Machine Type/Model

Some systems have these additional items:

- BIOS Release Date
- Default Flash Image File Name

Note that these additional items are not documented by IBM, so this is guess work, and as such should not be blindly trusted. Feedback about the accuracy of these labels is welcome.

OPTIONS

-d, --dev-mem FILE

Read memory from device **FILE** (default: **/dev/mem**)

-s, --string KEYWORD

Only display the value of the VPD string identified by **KEYWORD**. **KEYWORD** must be a keyword from the following list: **bios-build-id**, **box-serial-number**, **motherboard-serial-number**, **machine-type-model**, **bios-release-date**. Each keyword corresponds to an offset and a length within the VPD record. Not all strings may be defined on all VPD-enabled systems. If **KEYWORD** is not provided or not valid, a list of all valid keywords is printed and **vpddecode** exits with an error. This option cannot be used more than once. Mutually exclusive with **--dump**.

-u, --dump

Do not decode the VPD records, dump their contents as hexadecimal instead. Note that this is still a text output, no binary data will be thrown upon you. ASCII equivalent is displayed when possible. This option is mainly useful for debugging. Mutually exclusive with **--string**.

-h, --help

Display usage information and exit

-V, --version

Display the version and exit

FILES

/dev/mem

AUTHOR

Jean Delvare

SEE ALSO

biosdecode(8), **dmidecode(8)**, **mem(4)**, **ownership(8)**