

EPYC™ System Management Interface (E-SMI) In-band Library  
Release v3.0

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## 1 EPYC™ System Management Interface (E-SMI) In-band Library

NEW! E-SMI library beta 5.0 is now available

The EPYC™ System Management Interface In-band Library, or E-SMI library, is a C library for Linux that provides a user space interface to monitor and control the CPU's power, energy, performance and other system management features.

### 1.1 Changes Notes

#### 1.1.1 Highlights of release v5.0

- Added support for F1A M50-5F.
- `--setcorebl` to provide failure summary by comparing against Fmin/Fmax.
- `--showxgmibw` to take linkname and bwtype in any case(upper/lower/mix).
- Add Socket Information to Print Summary.
- DIMM Power Display in Watts.
- Logger: Update Logger Header to have right delimiter between String and Numbers.
- Convert DIMM Refresh Rate to user Friendly Names. Note: All the features of this release work well only with hsmpt driver tag 3.0 ( [https://github.com/amd/amd\\_hsmpt](https://github.com/amd/amd_hsmpt)) and above.

### **1.1.2 Highlights of release v4.3**

- Adding JSON/CSV format prints for get options.
- Adding logger(CSV) support for get options.
- Adding loopcount, loopdelay, initialdelay support for continuous monitoring of data for get options.

### **1.1.3 Highlights of release v4.2**

- amd\_hsmpt.h is added as part of E-smi library.
- E-smi installation path is updated.
- Bug and warnings fixed.

### **1.1.4 Highlights of release v4.1.2**

- Bug fix release

### **1.1.5 Highlights of release v4.1.1**

- Clang compiler is supported.
- Some of the bugs are fixed.
- tool option is added to read the HSMP driver version.

### **1.1.6 Highlights of release v4.0.0**

- AMD Family 0x1A and model 0x00-0x1f processors are supported in this release.
- Any of the hsmpt/amd\_energy/msr\_safe/msr driver can be used to monitor energy.

### **1.1.7 Highlights of release v3.0.0**

- AMD MI300 processors are supported in this release.
- Library is modified to support platform specific check in each message in an organised way.
- tool options are modified to show valid input values

### **1.1.8 Highlights of minor release v2.1**

- Library is updated to align with changes in the processor spec

### 1.1.9 Highlights of release v2.0

- Supports new HSMP protocol version 5 messages, defined for Family 19h Model 10h - SP5
  - New APIs are added for platform features
  - esmi\_tool is update with platform specific features

### 1.1.10 Highlights of release v1.5

- Supports ioctl based implementation of hsmg driver with support for following new APIs
  - Set XGMI link width for 2P connected systems
  - Set LCLK dpm level for NBIO id
  - APB Disable and Enable messages

### 1.1.11 Highlights of minor release v1.2

- Support to compile ESMI In-band library as static
- Support for new system management features in tool and library, such as
  - Get SMU Firmware version
  - Get PROCHOT status
  - Get clocks
    - \* CPU clock frequency limit
    - \* Data Fabric Clock(fclk),
    - \* DRAM Memory Clock(mclk) and
  - Provide maximum DDR bandwidth(theoretical) & DDR bandwidth utilization
- Add more options and improve tool's console output for readability

### 1.1.12 Highlights of minor release v1.1

- Support for creating RPM and DEB packages
- Auxiliary APIs to provide system topology
- An API to read all the Energy counters on the CPU at once.
- Single command to create doxygen based PDF document
- Updated e\_smi\_tool supporting all the above information
- Cosmetic changes to the tool

### 1.1.13 Highlights of major release v1.0

- Power
  - Current Power Consumed
  - Power Limit
  - Max Power Limit
- Performance
  - Boostlimit
- Energy
  - Energy Consumed
- e\_smi\_tool, user application supporting all the above information.

## 1.2 Specifications

### 1.2.1 Processors:

Target released for AMD EPYC™ processor Family 19h, model 0h-1Fh, 30h-3Fh, 90h-9Fh, A0h-AFh and Family 0x1A model 0h-1Fh.

### 1.2.2 Operating Systems

AMD ESMI In-band library is tested on following distributions

- Ubuntu 18.04, 20.04
- SUSE SLES 15 and
- RHEL 8.1

## 1.3 Dependency

This new e-smi release works well with [amd\\_hsmpt](#) driver version 2.4. Not all features will work with version < 2.4. Setting cpu rail iso frequency policy, df c-state enabling, xGMI pstate range setting etc will only work with 2.4 version of amd\_hsmpt driver.

## 1.4 Resources and Technical Support

### 1.4.1 Resources

- Documentation: [https://github.com/amd/esmi\\_ib\\_library/blob/master/ESMI\\_Manual.pdf](https://github.com/amd/esmi_ib_library/blob/master/ESMI_Manual.pdf)
- Source code: [https://github.com/amd/esmi\\_ib\\_library](https://github.com/amd/esmi_ib_library)

### 1.4.2 Support

Thank you for using AMD ESMI In-band Library. Please use [ESMI In-band Support](#) for bug reports, support and feature requests.

### 1.4.3 Known Issues

- In creating package if "make install" is used previously with "sudo", need to create package with sudo permission, "sudo make package", else permission denied error is popped.