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

Release v3.0

Generated by Doxygen 1.8.17

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

NEW! E-SMI library beta 4.1.1 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 v4.1.1

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

1.1.2 Highlights of release v4.0.0

- AMD Family 0x1A and model 0x00-0x1f processors are supported in this release.
- Any of the hsmp/amd_energy/msr_safe/msr driver can be used to monitor energy.

1.1.3 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

1.1.4 Highlights of minor release v2.1

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

1.1.5 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

1.1.6 Highlights of release v1.5

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

1.1.7 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(theoritical) & DDR bandwidth utilization
- Add more options and improve tool's console output for readability

1.1.8 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

1.1.9 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_hsmp` 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_hsmp driver.

1.4 Resources and Technical Support

1.4.1 Resources

- Documentation: `https://github.com/amd/esmi_ib_library/blob/master/ESMI_↩Manual.pdf`
- Source code: `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.