THERMAL MANAGEMENT

In *sys*/class/thermal directory:

thermal_zone0 - Battery: This thermal zone monitors the battery temperature.

`thermal_zone1` – AP(Application Processor): This is the second thermal zone in the device. It could represent another temperature sensor, possibly for a Application Processor which is the main processing unit of a device responsible for running user applications and handling general-purpose computing tasks.

`thermal_zone2` – MDPA(Mobile Device Power Amplifier): This is the third thermal zone. The "mdpa" type in a thermal zone likely refers to a specific thermal zone related to a Mobile Device Power Amplifier (MDPA) or a similar component within a mobile device or wireless communication system.. These power amplifiers can generate heat during operation, and monitoring their temperature is essential for ensuring proper performance, preventing overheating, and maintaining device reliability.

thermal_zone3 - CPU: This represents the first thermal zone in the system. Depending on the hardware configuration, it could correspond to the CPU temperature sensor or another critical component.

`thermal_zone4` - PA(Power Amplifier): This thermal zone monitors the temperature of the PA, This may involve adjusting transmission power levels, optimizing signal processing algorithms, or activating cooling mechanisms (such as thermal throttling or fans) to dissipate heat efficiently.

thermal_zone5 - PMIC(Power Management Integrated Circuit): This thermal zone monitors the temperature of the PMIC, This PMIC is an integrated circuit that manages power in electronic devices, typically providing functions such as voltage regulation, battery charging, power sequencing, and thermal management.

Example:

In every sys/class/thermal/thermal_zone0 directory, it contains:

1.trip_point_0_temp

The temperature above which trip point will be fired.
Unit: millidegree Celsius
RO, Optional
eg:--
trip_point_0_temp: 100000

2.trip_point_0_type

Strings which indicate the type of the trip point.

E.g. it can be one of critical, hot, passive, active for ACPI(Advanced Configuration and Power Interface) thermal zone.

RO, Optional

eg:--

trip_point_0_type: critical

1. **Active**:

   i> Active trip points indicate that the system will take proactive actions to manage temperature when the threshold is crossed.

   ii> These actions may include increasing fan speeds, reducing CPU frequencies, or other measures to actively cool the system and bring temperatures back within safe operating limits.

2. **Passive**:

   i> Passive trip points indicate that the system will not take immediate proactive actions when the threshold is crossed.

   ii> Instead, passive trip points are often used to monitor temperature levels and trigger alerts or logging mechanisms to notify the system or the user of potential temperature concerns.Actions taken at critical trip points may include emergency shutdowns.

3. **Critical**:

   i> Critical trip points represent temperature thresholds beyond which the system considers the temperature to be dangerously high or critical to the system's operation.

   ii> When the critical threshold is reached, the system will initiate emergency measures to prevent damage to components or data loss.

4. **Hot**:

   i> Hot trip points are similar to critical trip points and represent temperature thresholds indicating that the system is operating at elevated temperatures.

   ii> When the hot threshold is reached, the system may take proactive actions to mitigate heat buildup and prevent temperatures from escalating further.

4.temp

User can set any temperature between 0 to TJ-Max temperature. Temperature units are in milli-degree Celsius.

3.type

Strings which represent the thermal zone type.

This is given by thermal zone driver as part of registration.

4.temp

Current temperature as reported by thermal zone (sensor).
Unit: millidegree Celsius
RO, Required

While connect device in sys/class/thermal/thermal_zone0 directory, it contains:

1.

trip_point_0_temp	:	60000
trip_point_0_type	:	active
type	:	mtktsbattery
temp	:	24000

2. sys/class/thermal/thermal_zone3

trip_point_0_temp	:	117000
trip_point_0_type	:	active
trip_point_1_temp	:	57000
trip_point_1_type	:	active
trip_point_2_temp	:	56000
trip_point_2_type	:	active
type	:	mtktscpu
temp	:	44500

The "active" trip points suggest that actions may be taken when the temperature exceeds certain thresholds, such as adjusting fan speed or throttling performance to prevent overheating.