



Application Note

SL1680 Power Consumption

Abstract: This application note provides an overview of the power consumption characteristics of the SL1680 processor across various operational modes. It outlines power usage in different scenarios, from active 4K media playback to low-power standby, helping developers optimize energy efficiency in embedded applications.

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1. Introduction

The Synaptics SL-Series of embedded processors are highly integrated AI-native Linux® and Android™ systems on chip (SoCs) optimized for multi-modal consumer, enterprise, and industrial IoT workloads. The SL1680 is designed and optimized for embedded applications that require powerful processing, advanced AI capability, and 3D graphics. This chip comes with Linux® OS, superior audio algorithms, a variety of peripherals, dual displays, companion Synaptics SoC for connectivity and audio front end. The focus of this document is on the power consumption in various operational modes.

1.1. Power Consumption Across Various Power Modes

Power Mode	Power (Avg): CPU Voltage (W)	Power (Avg): CORE Voltage (W)	Total Power (Avg): Platform (W@5VDC)	CPU Temp (°C)
4K 60 Media Playback / HDR10	0.6	2.2	5.4	105
4K Setting Menu	0.5	1.8	4.5	105
Fast Standby - Active Mode	0.4	0.9	2.1	45
Active-Standby	0.08	0.45	1	40
Suspend	0	0	0.5	40
Low Power Standby	0	0	0.3	30

2. References

The following documentation is associated with SL1680:

- *SL1680 Embedded IoT Processor Datasheet* (PN: 505-001413-01)
- *SL1680 Dynamic Voltage/Frequency Scaling Application Note* (PN: 506-001369-01)

3. Revision History

Revision	Description
A	Initial release.
B	Minor update to correct template.



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