



Application Note

# SL1620 Power Consumption

**Abstract:** This application note provides an overview of the power consumption characteristics of the SL1620 processor across different operational modes. It highlights power usage in standby, active, and other states to help 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 SL1620 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, with particular emphasis on standby mode.

### 1.1. Standby Mode Power

SL1620 Condition	Supply Voltage (V)	Current (mA)	Power (mW)
CPU: CPU 0-25MHz Idle, CPU 1, 2 & 3 Power Down	0.8	8.76	7.01
DDR4-2133, 32-bit: Self Refresh			
Peripherals: Disabled			
GPIOs: Wait for Interrupt mode			
SoC 3.3V	3.3	2.15	7.10
SoC 1.8V	1.8	4.15	7.47
SoC VDDQ	1.2	12.74	15.29
Total SoC Idle mode average power consumption			36.87

### 1.2. Power Consumption Across Various Power Modes

Power Mode	Power (Avg): CORE Voltage (W)	Total Power (Avg): Platform (W@5VDC)	CPU Temp (°C)
Audio Playback through WIFI	0.85	1.45	105
Setting Menu / Idle	0.6	0.85	105
Fast Standby - Active Mode	0.4	0.55	45
Active-Standby	0.2	0.3	40
Suspend	0.15	0.25	40

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## 2. References

The following documentation is associated with SL1620:

- *SL1620 Embedded IoT Processor Datasheet* (PN: 505-001428-01)
- *SL1620 Dynamic Voltage/Frequency Scaling Application Note* (PN: 506-001423-01)

### 3. Revision History

Revision	Description
A	Initial release.
B	Updated Introduction and Standby Mode Power; SoC VDDQ condition description.
C	Add Section 1.2 for power measurement with different modes.
D	Minor change to correct template.



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