HAILO

Empowering Intelligence

Hailo-10H M.2 ET Module

Key M 2280

Datasheet

June 2025



Part Numbers:
2280 with 4GB: HM22HB2C2FAE
2280 with 8GB: HM22HB1C2FAE

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Documentation Control

Revision History

Version	Date	Description
0.5	January 2024	Initial release
0.7	May 2024	Updated Hailo-10H M.2 Key M ET block diagram Typo corrections
0.8	Nov 2024	Updated the part number
0.9	Feb 2025	Updated with descriptions of the 4 and 8 GB module options
0.91	April 2025	Updated power consumption description
1.0	June 2025	Updated module image Updated Section 1

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1. Overview

1.1. Introduction

The Hailo-10H M.2 Key M ET module delivers up to 40 TOPS [INT4] of AI compute power in a compact M.2 Key M (2280) form factor, enabling seamless integration into diverse AI applications such as PCs, smart cars and other edge devices. Designed for reliable performance across an extended operating temperature range (See Section 2.1) and scalable to support demanding workloads, this module is part of Hailo's comprehensive family of PCI Express® (PCIe®) based acceleration modules, offering scalable solutions for various form factors and performance needs.

The module is exceptionally cost-efficient and features industry-leading power efficiency, by consuming 2.5W under typical workload. It enables real-time processing of demanding vision and generative AI models, such as LLMs, with minimal CPU/GPU load and supports simultaneous processing of multiple AI models. Powered by the Hailo-10H AI accelerator and equipped with 4GB or 8GB LPDDR4 memory, the module leverages a full PCIe Gen 3 4-lane interface for high-throughput data streaming.

The Hailo-10H M.2 Key M ET module is supported by a robust and mature software suite, backed by the world's largest edge AI community

1.2. System Requirements

- **Hardware**:
  - CPU Architecture
    - x86 based; or
    - ARM aarch-64 based
  - Available M.2 socket
    (Key M, Socket 3 type, compatible with NVME slots)
- **Software**:
  - Supported operating system: Linux®, Windows®

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1.3. System Level Block Diagram

The following block diagram illustrates the Hailo-10H M.2 Key M ET module:

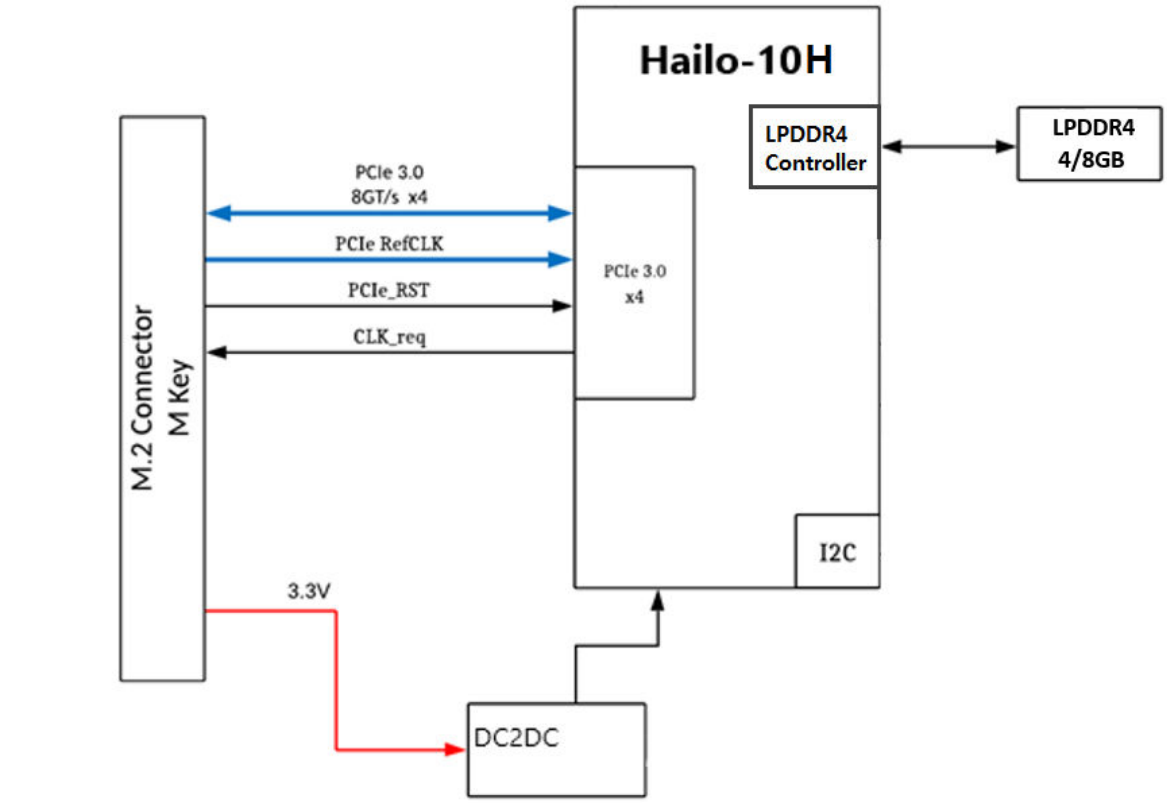


Figure 1: Hailo-10H M.2 Key M ET module block diagram

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2. Specifications

2.1. Key Properties

Compliance	
Certification	CE; FCC Class A
Environmental	
Storage Temperature	-40° to 85° C
Operating Temperature	-40° to 85° C *(refer to section 3.2 for further details)*
Storage/Operating Humidity	5% to 90% RH (non-condensing)
Physical	
Form Factor	M.2 Key M
Dimensions	22 x 80 mm Height: 1.5mm top, 0.5mm bottom
Electrical	
Power supply	3.3V ± 5%
Interface	PCIe Gen 3, 4-lanes
NN Capacity (INT4 | INT8)	40 | 20 TOPS

Table 1. Key properties

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2.2. PCIe Connector Pinout

Pin Number(s)	Signal	Type
21	CONFIG_0 (GND)	Defines module type: SSD-PCIe
69	CONFIG_1 (NC)	
75	CONFIG_2 (GND)	
1	CONFIG_3 (GND)	
3,9,15,27,33,39,45,51,57,71,73	GND	Power
2,4,12,14,16,18,70,72,74	3.3V	Power
50	PERST#	I
52	CLKREQ#	I/O
54	PEWAKE#	I/O
53,55	REFCLK[n/p]	I
41,43	PET[n/p]0	O
47,49	PER[n/p]0	I
29,31	PET[n/p]1	O
35,37	PER[n/p]1	I
17,19	PET[n/p]2	O
23,25	PER[n/p]2	I
5,7	PET[n/p]3	O
11,13	PER[n/p]3	I

Table 2: Hailo-10H M.2 Key M ET module Pin description

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2.3. Mechanical Properties

Below is a diagram showing the mechanical outlines and the dimensions for the Hailo-10H M.2 Key M ET module.

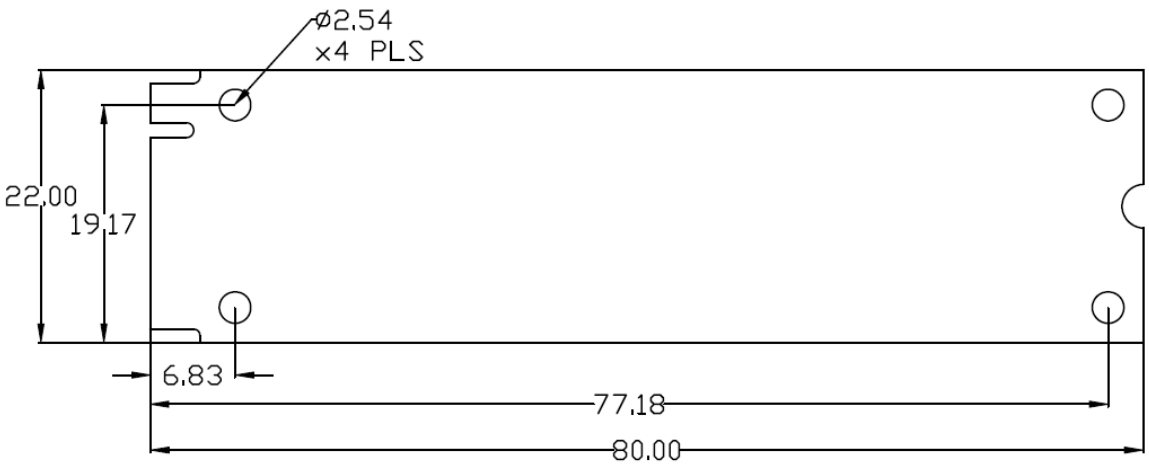


Figure 2: Mechanical outlines

For more information, see the *PCI Express M.2 Specification Revision 3.0, Version 1.2* on the PCISIG website.

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2.4. Module Board

Figure 3 below shows a front view of the Hailo-10H M.2 2280 module.



Figure 3. Hailo-10H M.2 2280 Key M ET Module

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3. Power Consumption and Thermal Management

3.1. Module Power Consumption

The module requires a 3.3V supply (power pins are as detailed in Table 2).

The module's power consumption is dependent on the resources utilized for inference. It consumes up to 8.25W and less than 2.5W under a typical workload. The electrical design follows the M.2 specifications in terms of power delivery.

3.2. Characteristic Power Consumption Under Workload

Resnet-50 224x224 @ 1015 FPS	2.5W
QWEN2 1.5B @ 11 TPS	2.2W

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