HAILO

Empowering Intelligence

Hailo-8 Century User Guide

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Documentation Control

History Table

Version	Date	Description
1.0	October 2023	Initial release
1.1	October 2023	Updated card dimensions and mechanical properties
1.2	October 2023	Addition of Century-0804 drawing with full-height bracket
1.3	December 2023	Updated bracket drawings

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1. Introduction

1.1. Purpose

This document describes how to use the Hailo-8 Century Small Form Factor PCIe cards: Century-0802, Century-0803, Century-0804 (“Hailo-8 Century Small-FF”).

The Hailo-8 Century Small-FF cards, are part of Hailo-8 high-performance PCIe cards, enabling deep neural network inferencing in real-time, with low power consumption for a broad range of applications on host platforms with a 16-lane PCIe slot. The cards include multiple Hailo-8 devices.

1.2. Target Audience

The intended end users of this document are hardware/system designers integrating the Hailo-8 Century Small-FF cards into their AI edge devices.

Compatible with the PCIe CEM form factor, the Century Small-FF cards can be plugged into an existing edge device with a PCIe slot.

For any questions concerning the hardware integration or software installation please contact the Hailo Application Support Team.

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2. System Requirements

Listed below are the basic system requirements for the Hailo-8 Century Small-FF PCIe Cards:

- **Hardware**:
  - CPU Architecture
    - x86 based; or
    - ARM aarch-64 based
  - PCIe x16 slot supports PCIe bifurcation per the table below.

	Century-0802	**Century-0803**	**Century-0804**
Bifurcation Configurations	X8/X8	X8/X4/X4	X8/X8

- **Software**:
  - Linux Ubuntu or other distributions
  - Supported kernel versions: multiple, tested on Linux kernel versions 4.15.0-39-generic and 5.0.16-050016-generic.

  or

  - Microsoft Windows 10 64 bits

For software installation instructions please refer to the RT User guide located at the documentation tab of the Hailo Developer Zone https://hailo.ai/developer-zone/documentation/hailort/latest/?sp_referrer=install/install.html

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3. Block Diagrams

TBD

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4. Specifications

4.1. Key Properties

Compliance	
Certification	CE; FCC Class A
Environmental	
Storage Temperature	-40°-85° C
Operating Temperature	-40°-85° C
Storage/Operating Humidity	5% to 90% RH (non-condensing)
Physical	
Form Factor	PCIe CEM single slot low profile
Dimensions	Century-0802, 0803 and 0804 68.89 mm (2.712”) x 167.64 mm (6.6”) see Section 4.3 for details
Electrical	
Power supply	12V +5% / -8% 3.3V +8% /-8%
Thermal design power (TDP)	Century-0802: 15W Century-0803: 20W Century-0804: 45W
PCI Express Specification	PCI Express CEM Rev. 3.0 Ver 1.0
Interface	PCIe Gen 3, 16-lanes
Peak Performance (INT8)	Century-0802: 52 TOPS Century-0803: 78 TOPS Century-0804: 104 TOPS

Table 1. Key properties

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4.2. PCIe Connector Pinout

This adapter is compatible with per PCI Express CEM form factor and the Century Small-FF cards can be plugged into an existing edge device with a PCIe slot

For more information, see the PCI Express CEM Specification Revision 3.0 on the PCISIG website.

4.3. Mechanical Properties

Figure 1, Figure 2 and Figure 3 below, display the mechanical outline and dimensions (mm) for the Hailo-8 Century Small-FF cards.

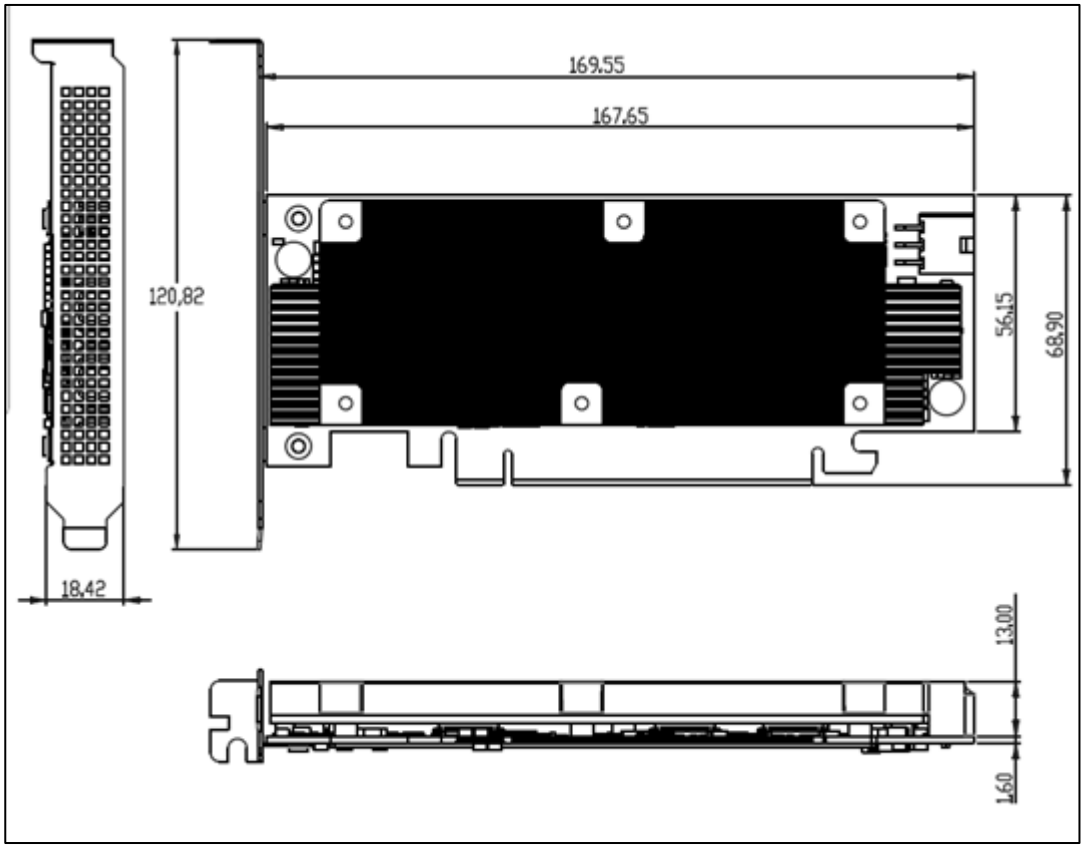


Figure 1. Century-0802, Century-0803 with low-profile bracket

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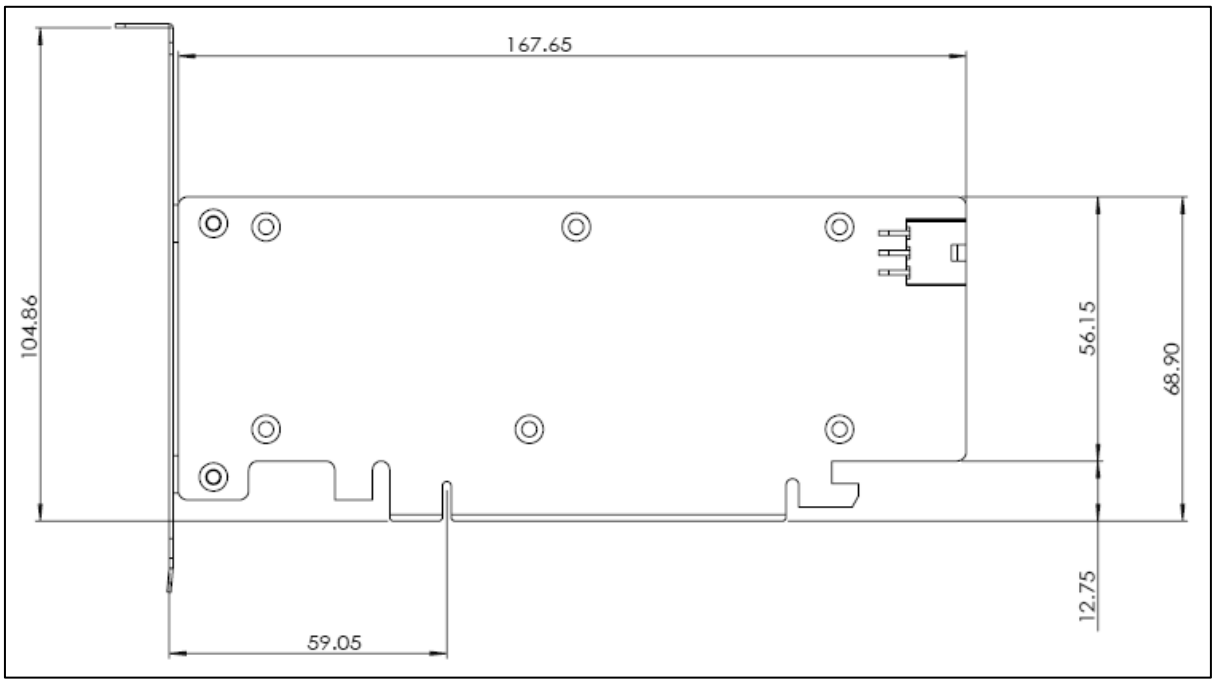


Figure 2. Century-0802, Century-0803 with full-height bracket

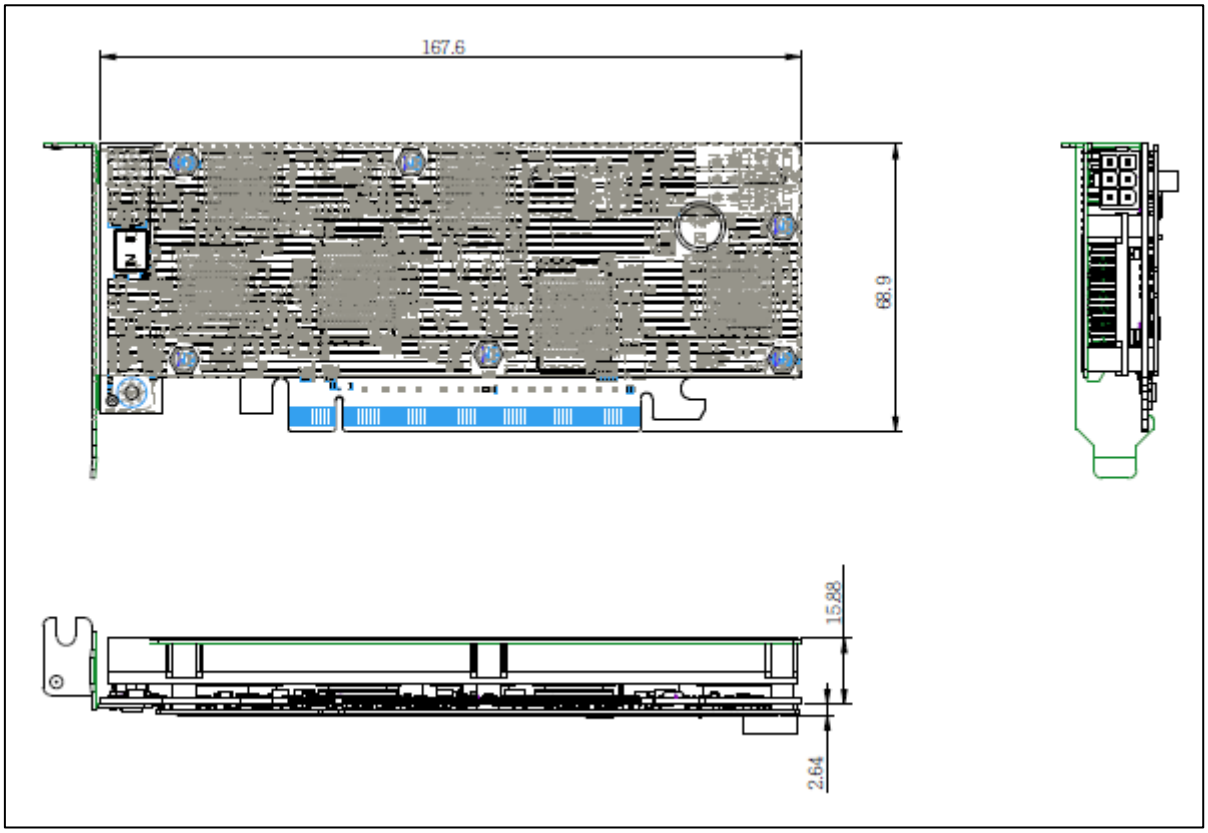


Figure 3. Century-0804 with low-profile bracket

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5. Power Consumption and Thermal Management

5.1. Cards Power Consumption

The Hailo-8 Century Small-FF cards require a 12V supply from the PCIe connector.

Note:
The Century-0804 includes an ATX power connector that must be used when the required power for the Century-0804 cannot be supplied from the PCIe slot.

5.2. Overheating and Overcurrent Protection

The Hailo-8 Century Small-FF cards incorporates monitoring and protection systems preventing overheating conditions and excessive power consumption.

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6. Integration Flow

The Integration Flow, which is further elaborated in this document is structured by the following installation steps:

6.1. Installation

SW Installation:

The integrator shall follow the installation guidelines as given in the 'HailoRT installation guide' that can be found in https://hailo.ai/developer-zone/documentation/

HW installation:

The Hailo-8 Century Small-FF cards shall be used only in systems with an available PCIe x16 slot that supports PCIe bifurcation according to the table below.

	Century-0802	**Century-0803**	**Century-0804**
Bifurcation Configurations	X8/X8	X8/X4/X4	X8/X8

6.2. Thermal Design

The Hailo-8 Century Small-FF are high-performance cards and are supplied with heat dissipation to ensure continued optimal performance.

6.3. Integration Tool

The User guide for the 'Hailo integration tool' can be found at the link: https://hailo.ai/developer-zone/documentation/

6.3.1. Installation

The integrator shall follow the installation instructions given in the 'Hailo Integration tool' user guide which can be found at the link: https://hailo.ai/developer-zone/documentation/.

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6.3.2. Tests

The ‘Hailo integration tool’ supports various tests including Thermal, Stress, PCIe configuration and Performance tests.

The tests objectives, usage, parameters, output, and other information are provided in the ‘Hailo Integration Tool User Guide.

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