



# Intel® NUC M15 Laptop Powered by Intel® EVO™

LAPRC510

LAPRC710

## Product Specification

Version 1.0

Regulatory Model Name: RC57

*June 2022*

Intel® LAPRC510 and LAPRC710 may contain design defects or errors known as errata that may cause the product to deviate from published specifications. Current characterized errata, if any, are documented in this Product Specification.



# Revision History

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Revision	Revision History	Date
1.0	First Release	June 2022

# Disclaimer

This product specification applies to only the standard Intel® NUC M15 Laptop LAPRC510 and Intel® NUC M15 Laptop LAPRC710 with a BIOS identifier that starts with RCADL357.

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# Intel® NUC M15 Laptop Identification Information

## LAPRC510 and LAPRC710 Identification Information

Original SA Revision	Product Code	Original BIOS Revision	Notes
M65721-402	BRC510EAUXBC1	RCADL357.0053.2022.0512.2055	1,2
M65781-402	BRC710ECUXBD1	RCADL357.0053.2022.0512.2055	1,2

Notes:

1. The SA number is found on the back cover.
2. The processors used on this SA revision may consist of the following components:

Device	Stepping	Spec Code
Intel® Core™ i5-1240P	L0	SRLD9
Intel® Core™ i7-1260P	L0	SRLD6

## Specification Changes or Clarifications

The table below indicates the Specification Changes or Specification Clarifications, if any, that apply to LAPRC510 and LAPRC710.

### Specification Changes or Clarifications

Date	Type of Change	Description of Changes or Clarifications

## Errata

Current characterized errata, if any, will be documented in a separate section of this Product Specification.

# Preface

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This Product Specification specifies the layout, components, connectors, power, and environmental features for the Intel® NUC M15 Laptop LAPRC510 and LAPRC710.



## NOTE

In this document, the use of "Intel® NUC M15 Laptop" will refer to the LAPRC510 and LAPRC710 versions of the Intel® NUC M15 Laptop unless otherwise noted.

## Intended Audience

This document is intended to provide technical information about LAPRC510 and LAPRC710 and its components to the vendors, system integrators, and other engineers and technicians who need this level of information. It is specifically *not* intended for general audiences.

## What This Document Contains

Chapter	Description
1	A description of the Intel® NUC M15 Laptop
2	A technical description of the Intel® NUC M15 Laptop features

## Typographical Conventions

This section contains information about the conventions used in this specification. Not all of these symbols and abbreviations appear in all specifications of this type.

## Notes, Cautions, and Warnings



### NOTE

*Notes call attention to important information.*



### CAUTION

*Cautions are included to help you avoid damaging hardware or losing data.*

## Other Common Notation

#	Used after a signal name to identify an active-low signal (such as USBP0#)
GB	Gigabyte (1,073,741,824 bytes)
GB/s	Gigabytes per second
Gb/s	Gigabits per second
KB	Kilobyte (1024 bytes)
Kb	Kilobit (1024 bits)
kb/s	1000 bits per second
MB	Megabyte (1,048,576 bytes)
MB/s	Megabytes per second
Mb	Megabit (1,048,576 bits)
Mb/s	Megabits per second
TDP	Thermal Design Power
Xxh	An address or data value ending with a lowercase h indicates a hexadecimal value.
x.x V	Volts. Voltages are DC unless otherwise specified.
*	This symbol is used to indicate third-party brands and names that are the property of their respective owners.

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# 1 Product Description

## 1.1 Overview

The Intel® NUC M15 Laptop is a premium anodized aluminum, thin and light laptop powered by Intel® EVO™.

## 1.2 Version Summary

There is one version of LAPRC510 and one version of LAPRC710 documented in this product specification which are summarized in Table 1. Unless otherwise noted in this document, not all features are available on all versions.

**Table 1. Version Summary**

Version	Product Code	CPU	Memory	Storage	Display	Color
LAPRC510	BRC510EAUxBC1	Intel® Core™ i5-1240P	16GB	512GB	FHD, non-touch	Shadow Gray
LAPRC710	BRC710ECUXBD1	Intel® Core™ i7-1260P	16GB	1TB	FHD, touch	Shadow Gray

## 1.3 Feature Summary

Table 2 summarizes the major features of the LAPRC510 and LAPRC710 powered by Intel® EVO.

**Table 2. LAPRC510 and LAPRC710 Feature Summary**

Feature	LAPRC510	LAPRC710
Color	Shadow Gray	Shadow Gray
Materials	Anodized Aluminum	Anodized Aluminum
Processor	Intel® Core™ i5-1240P	Intel® Core™ i7-1260P
Memory	16GB LPDDR5 5200MHz	16GB LPDDR5 5200MHz
Graphics	Integrated Intel® Iris® X <sup>e</sup> Graphics	Integrated Intel® Iris® X <sup>e</sup> Graphics
Storage	1 M.2 22x80 PCIe x4 Gen4 NVMe with 512GB SSD installed	1 M.2 22x80 PCIe x4 Gen4 NVMe with 1TB SSD installed
Display Panel	Narrow Bezel IPS 15.6" 1920x1080, 60Hz, 16:9 ratio, 100% sRGB <sup>1</sup> , LED backlight, non-touch screen, average brightness of 400 nits.	Narrow Bezel IPS 15.6" 1920x1080, 60Hz, 16:9 ratio, 100% sRGB <sup>1</sup> , LED backlight, touch screen, average brightness of 400 nits.
Display Outputs	1 Full Size HDMI* 2.1 TMDS Compatible Output 2 DisplayPort* 1.4a via USB Type C	1 Full Size HDMI* 2.1 TMDS Compatible Output 2 DisplayPort* 1.4a via USB Type C
Audio	Realtek* ALC711 with Intel® HD Audio Intel® Smart Sound Technology 1 3.5mm Headset Audio Jack	Realtek* ALC711 with Intel® HD Audio Intel® Smart Sound Technology 1 3.5mm Headset Audio Jack
Speakers	2 Built In, 2W each	2 Built In, 2W each
Microphones	4 Digital Microphones	4 Digital Microphones
Keyboard	Silent Membrane with backlight, 1.2mm travel, ANSI Layout with US English Language	Silent Membrane with backlight, 1.2mm travel, ANSI Layout with US English Language
Pointing Device	Glass Touch/Click Pad with Microsoft* Precision Touchpad Driver Support Enable/Disable option with LED indicator	Glass Touch/Click Pad with Microsoft* Precision Touchpad Driver Support Enable/Disable option with LED indicator
Camera	HD IR with Windows Hello Support	HD IR with Windows Hello Support
Network	Intel® Wi-Fi 6E AX211, Bluetooth* 5.2	Intel® Wi-Fi 6E AX211, Bluetooth* 5.2

Feature	LAPRC510	LAPRC710
Power Supply	USB-C PD 20V, 65W 100/240V AC 50/60Hz with US Type B AC Power Cord	USB-C PD 20V, 65W 100/240V AC 50/60Hz with US Type B AC Power Cord
Battery	73.41Whr (4830mAh) ±5% with Fast Charge Support	73.41Whr (4830mAh) ±5% with Fast Charge Support
Power, Charging and Battery LED	Power On: White, Power Off: Off Charging (Power On): Breathing White Charging (Power Off): Breathing White Battery Low (<20%): Amber Charging Finish (w/AC): White, w/o AC: Off	Power On: White, Power Off: Off Charging (Power On): Breathing White Charging (Power Off): Breathing White Battery Low (<20%): Amber Charging Finish (w/AC): White, w/o AC: Off
Front Light Bar	RGB	RGB
USB	2 USB 3.2 (Gen 2) x1 Type A 2 Type C Thunderbolt™ 4 (USB 4/DP 1.4a)	2 USB 3.2 (Gen 2) x1 Type A 2 Type C Thunderbolt™ 4 (USB 4/DP 1.4a)
Size	355mm x 230mm x 15mm	355mm x 230mm x 15mm
Weight	1.7kg ±0.05kg	1.7kg ±0.05kg
Security	1 Kensington* NanoSaver Lock	1 Kensington* NanoSaver Lock
Advanced Technologies Supported	Intel® Speed Shift Technology Intel® Turbo Boost Technology 2.0 Intel® Hyper-Threading Technology Intel® Dynamic Tuning Technology Intel® Virtualization Technology (VT-x) Intel® Virtualization Technology for Directed I/O (VT-d) Intel® Deep Learning Boost (Intel® DL Boost) Intel® 64 Architecture Intel® SSE4.1, Intel® SSE4.2, Intel® AVX2, Intel® AVX-512 Thermal Monitoring Technologies	Intel® Speed Shift Technology Intel® Turbo Boost Technology 2.0 Intel® Hyper-Threading Technology Intel® Dynamic Tuning Technology Intel® Virtualization Technology (VT-x) Intel® Virtualization Technology for Directed I/O (VT-d) Intel® Deep Learning Boost (Intel® DL Boost) Intel® 64 Architecture Intel® SSE4.1, Intel® SSE4.2, Intel® AVX2, Intel® AVX-512 Thermal Monitoring Technologies
Security and Reliability	Intel® AES New Instructions Intel® Boot Guard Intel® OS Guard Intel® Software Guard Extensions (Intel® SGX) Intel® Platform Trust Technology (Intel® PTT)	Intel® AES New Instructions Intel® Boot Guard Intel® OS Guard Intel® Software Guard Extensions (Intel® SGX) Intel® Platform Trust Technology (Intel® PTT)
OS Features	NUC Software Studio, Windows Hello Support, Voice Assistant Support for Alexa*, and Cortana*. Support for Modern Standby	NUC Software Studio, Windows Hello Support, Voice Assistant Support for Alexa*, and Cortana*. Support for Modern Standby
Operating System Installed	Microsoft* Windows 11 Home 64-bit	Microsoft* Windows 11 Home 64-bit

1 - For color gamut, 100% sRGB is per the specification, 95% sRGB is guaranteed.

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<http://www.intel.com/LaptopSupport>

## 2 Technical Reference

### 2.1 Block Diagram

Figure 1 is a block diagram of the major functional areas of the Intel® NUC M15 Laptop. Note that some versions may have a non-touch display.

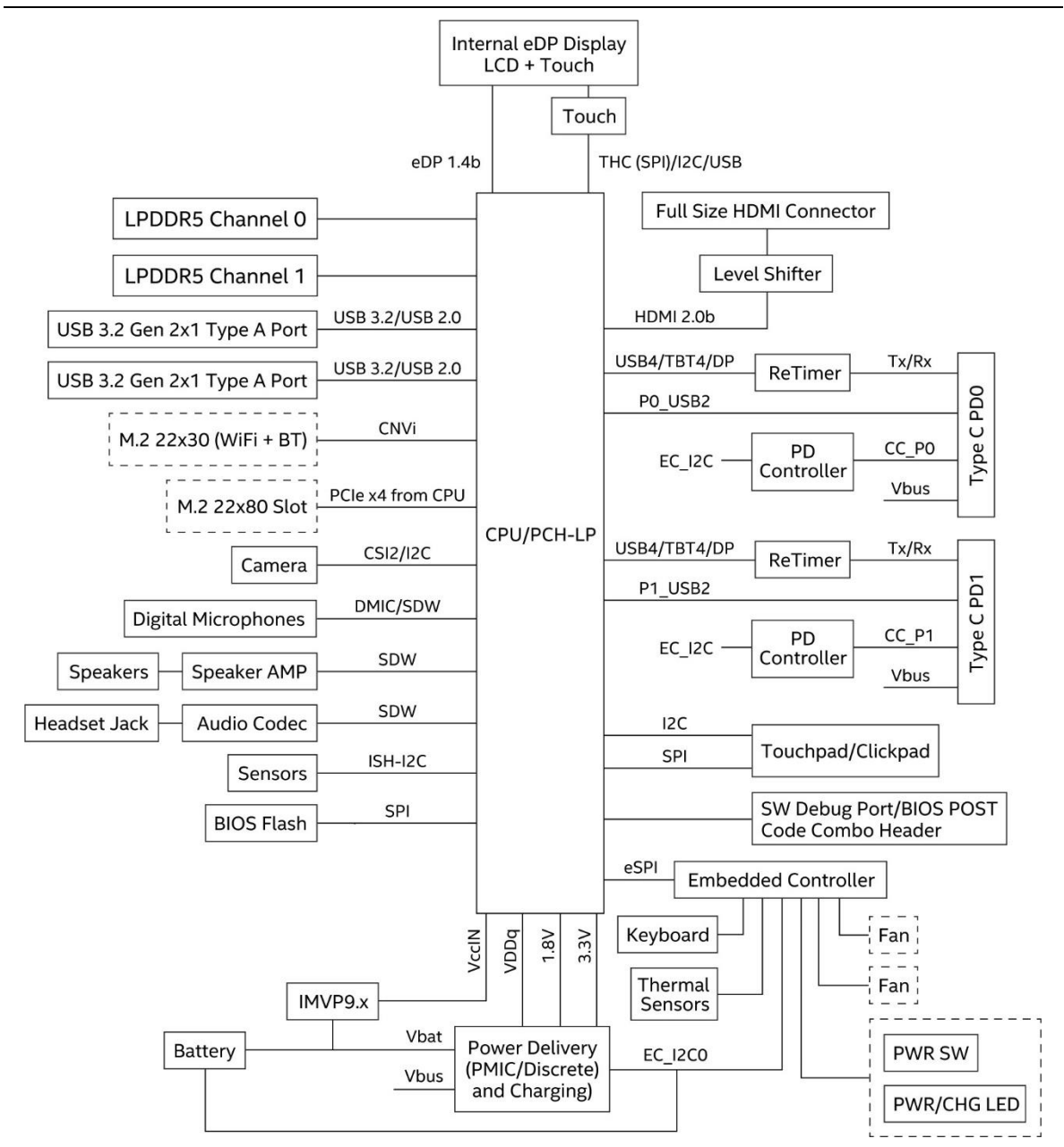


Figure 1. Block Diagram

## 2.2 Exterior Features

The following figures show the exterior features for all versions of the laptop.

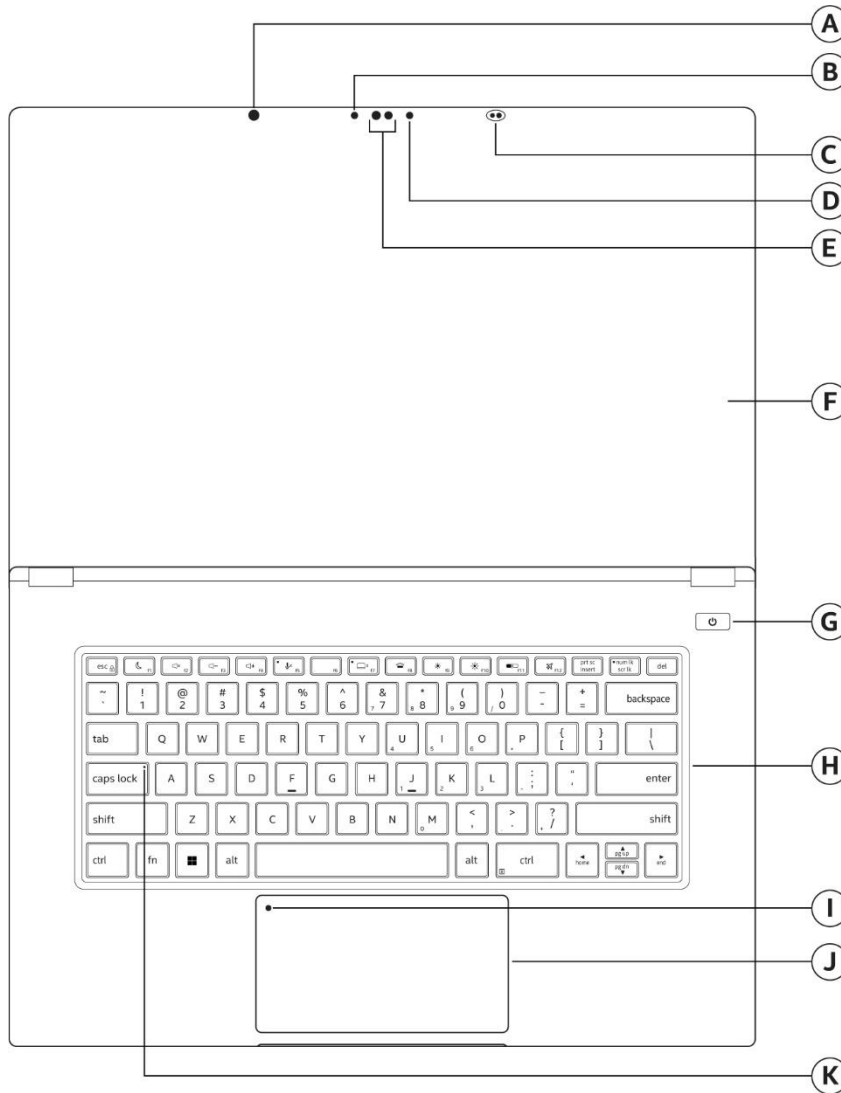
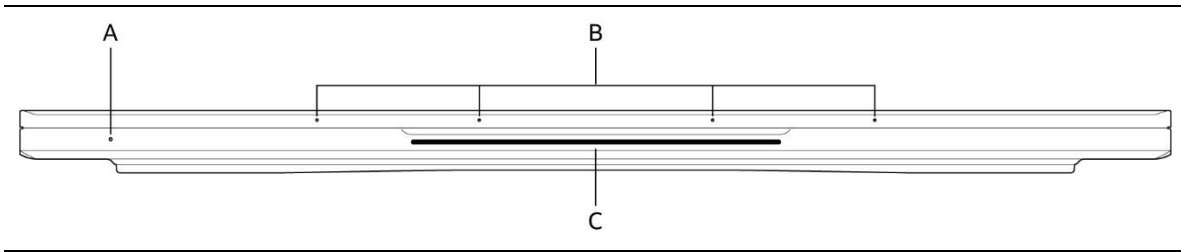


Figure 2. Top-Open Features

Table 3. Top-Open Features

Feature	Description	Feature	Description	Feature	Description
A	Ambient Light Sensor	E	Camera	I	Touchpad Enable/disable Switch/LED
B	White LED for Camera	F	Display	J	Touchpad/Clickpad
C	Time of Flight Sensor	G	Power Button <sup>1</sup>	K	Caps Lock Status LED
D	Infrared LED for Camera	H	Keyboard <sup>2</sup>		

1. The power button incorporates a power and battery status LED.
2. United States ANSI keyboard shown.



**Figure 3. Front Features**

**Table 4. Front Features**

Feature	Description	Feature	Description
A	Power/Battery Status LED <sup>1</sup>	C	RGB Light Bar
B	Digital Microphones		

1. The power/charging/battery status indicator will only be active when the lid is closed.

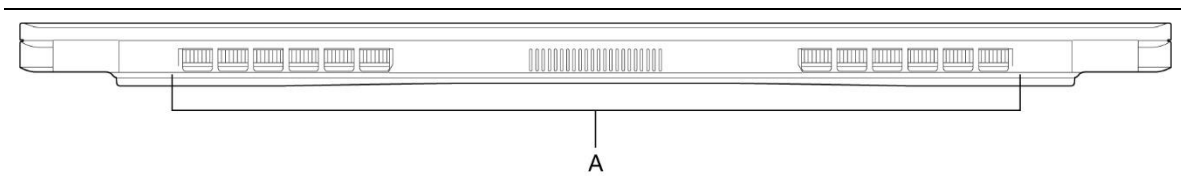
**Table 5. Power/Charging/Battery Status Indicator States**

Laptop Power Status	Powered On	Modern Standby	Hibernate	Powered Off
AC and Charging	White Breathing			
AC NOT Charging	White Solid		Off	
Battery	White Solid		Off	
Battery Low	Amber	Amber		Off

**Table 6. RGB Light Bar Features**

The RGB Light Bar can be configured for different uses as listed in the below table. Features can be configured using Intel® NUC Software Studio.

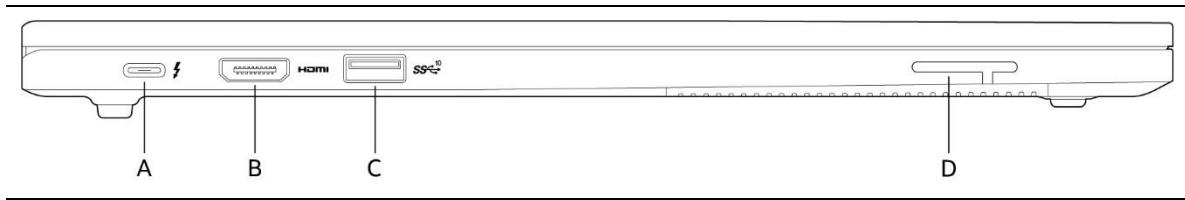
Feature	Description
Voice Assistant	The light bar will display the current state of the voice assistant in use on the system.
CPU Frequency	When the system is at base clock frequency, the middle of the light bar will be on. As frequency increases, more LEDs will turn on, moving from the center out.
Battery Charge State	When a power adapter is connected, the light bar will display the charging state from left to right. When the battery is fully charged, all the LEDs will be on.
Audio	The light bar will display a sound output meter moving from center out.
Single Color	Different colors can be displayed when the power adapter is plugged in or when on battery power.
Rainbow	The light bar rotates through the rainbow colors.



**Figure 4. Back Features**

**Table 7. Back Features**

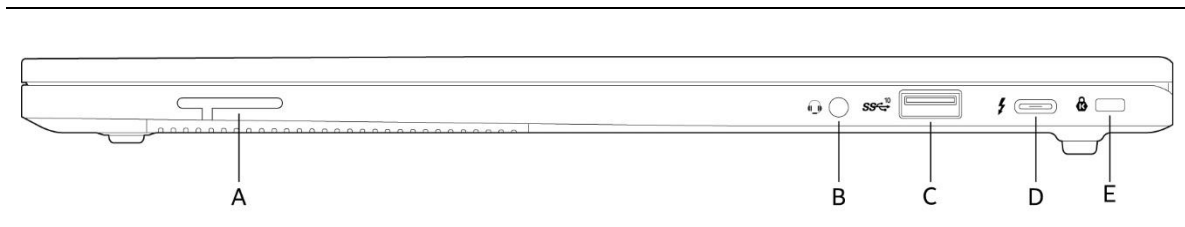
Feature	Description
A	Air Vents



**Figure 5. Left Features**

**Table 8. Left Features**

Feature	Description
A	Thunderbolt™ 4 Port/Power Connector
B	HDMI* 2.1 TMDs Compatible Port
C	USB 3.2 (Gen 2) Type A Port
D	Wireless Antenna



**Figure 6. Right Features**

**Table 9. Right Features**

Feature	Description
A	Wireless Antenna
B	Headset Jack
C	USB 3.2 (Gen 2) Type A
D	Thunderbolt™ 4 Port/ Power Connector
E	Kensington NanoSaver Lock

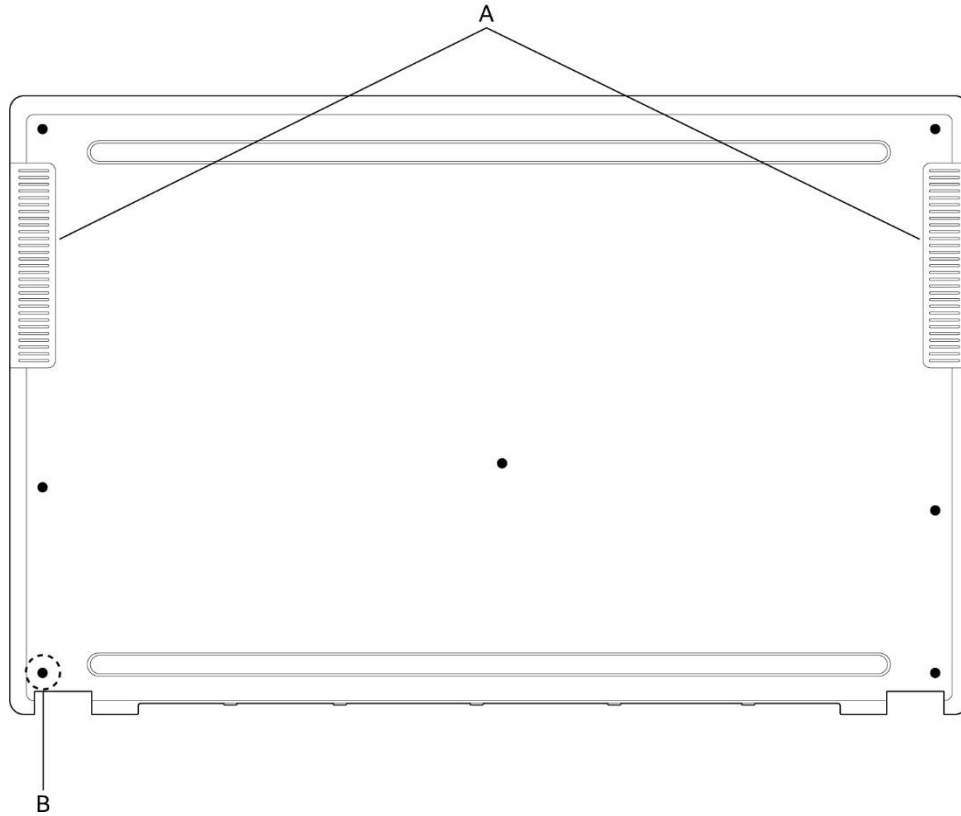


Figure 7. Bottom Features

Table 10. Bottom Features

Feature	Description
A	Speakers
B	Back Cover Screws

## 2.3 External Graphics

### Maximum Supported Resolutions

- HDMI\* 2.1 TMDs Compatible – 3840x2160 48-60 Hz 24 bpp (RGB/YUV444) or 3840x2160 48-60 Hz 12 bpc (YUV420)
  - Supported Features
    - DVD-Audio
    - Static HDR (HDR static metadata)
    - Dolby\* TrueHD / DTS-HD Master Audio bitstream capable
- DisplayPort\* 1.4a via Thunderbolt™ 4 Port - 4096x2304 60 Hz 36 bpp or 5120 x3200 60 Hz 24 bpp



## 2.4 Memory

Memory is soldered down with support for the following memory features:

- Dual Channel LPDDR5 5200Mhz
- 16GB of total memory

## 2.5 Storage

The following storage interface options are supported via one M.2 2280 (key type M) connector:

- Gen 4 PCIe x4 AHCI, NVMe port is reserved for the M.2 storage module supporting M.2 2280 (key type M) module. M.2 SATA SSD modules are not supported.
- A pre-installed NVMe PCIe x4 Gen 4 SSD. See Table 1.

### 2.5.1 AHCI Mode

LAPRC510 and LAPRC710 supports AHCI storage mode.



#### **NOTE**

*To use AHCI mode, AHCI must be enabled in the BIOS. Microsoft\* Windows\* 11 includes the necessary AHCI drivers without the need to install separate AHCI drivers during the operating system installation process.*

## 2.6 Thunderbolt™ 4

Thunderbolt™ 4 is supported with up to 40 Gbps of data throughput, 5K (60Hz) monitor output, USB 4 connection, charging output capabilities up to 5V at 3A or 9V at 2A and a 20V at 2.25A maximum input via the USB Type C connectors. 15V at 3A input is not supported due to limitation of the 4S1P battery.

## 2.7 Environmental

Table 11 lists the environmental specifications for the LAPRC510 and LAPRC710.

**Table 11. Environmental Specifications**

Parameter	Specification		
<b>Temperature</b>			
Non-Operating	-20 °C to +45 °C		
Operating	0 °C to +35 °C		
<b>Shock</b>			
Unpackaged	120 g half sinusoid waveform		
	3ms, 18 times (3 times/axis)		
Packaged	Half sine 2 millisecond		
	Product Weight (pounds)	Free Fall (inches)	Velocity Change (inches/s <sup>2</sup> )
	<20	36	167
	21-40	30	152
	41-80	24	136
	81-100	18	118
<b>Vibration</b>			
Unpackaged	5 Hz to 200 Hz: 2.62Grms, -6dB / octave from 200Hz to 500Hz		
	30 minutes per each axis (X, Y, Z)		
Packaged	5 Hz to 40 Hz: 0.015 g <sup>2</sup> Hz (flat)		
	40 Hz to 500 Hz: 0.015 g <sup>2</sup> Hz sloping down to 0.00015 g <sup>2</sup> Hz		

**Note:** Before attempting to operate this product, the overall temperature of the product must be above the minimum operating temperature specified. It is recommended that the product temperature be at least room temperature before attempting to power on the product. The operating and non-operating environment must avoid condensing humidity.



### CAUTION

To reduce the possibility of heat -related injuries or of overheating the computer, do not place the computer directly on your lap or obstruct the computer air vents. Use the computer only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to come into contact with the skin or a soft surface, such as pillows or rugs or clothing, during operation. The computer and the AC adapter comply with the user -accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 62368-1).

## 3 Characterized Errata

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This section of the document communicates product Errata for the Intel® NUC M15 Laptops.

Errata are design defects or deviations from current published specifications for a given product. Published errata may or may not be corrected. Hardware and software designed to be used with any given processor stepping must assume that all errata documented for that process stepping are present on all devices.

There are no characterized errata currently.