

**System Name:** INTEL  
**Company Name:** Virtualan Software

**Start Date:** 01/05/2019  
**End Date:** 15/10/2024

**Points of Contact**

<b>Project Manager</b>	Vignesh Kumar
<b>Product Manager</b>	Sarah Williams
<b>Project Owner</b>	Mani Kandan
<b>Application Owner</b>	Harish Kumar
<b>Solution Architect</b>	Elan Thangamani

**Funding**

<b>Years</b>	<b>Amount</b>
<b>2019</b>	\$124,000
<b>2020</b>	\$233,332
<b>2022</b>	1 Million
<b>2024</b>	\$1,478,400

**Project Versioning**

<b>Name</b>	<b>Version</b>	<b>Description</b>	<b>Date</b>
Wilson Smith	1.0	Initial version of the project.	03/05/2019
Sneha Patel	2.0	Improved version with additional features.	21/06/2022
Arjun Kumar	3.0	Version with performance enhancements.	16/08/2023
Thompson Lee	4.0	Latest version with bug fixes and updates.	07/10/2024

**Specifications Overview**

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## 1. Essentials

<b>Product Collection</b>	Intel® Core™ Ultra Processors (Series 2)
<b>Code Name</b>	Products formerly Lunar Lake
<b>Vertical Segment</b>	Mobile
<b>Processor Number</b>	226V
<b>Overall Peak TOPS (Int8)</b>	97

## 2. CPU Specifications

The CPU features a total of 8 cores, consisting of 4 performance cores and 4 low-power efficient cores, allowing for a total of 8 threads. It boasts a maximum turbo frequency of 4.5 GHz for both performance and low-power efficient cores, with a base frequency of 2.1 GHz for each core type.

The processor is equipped with an 8 MB Intel® Smart Cache and has a base power consumption of 17 W, which can reach up to 37 W under maximum turbo power conditions, with a minimum assured power of 8 W. Additionally, the CPU supports Intel® Deep Learning Boost (Intel® DL Boost) and is compatible with various AI software frameworks, including OpenVINO™, WindowsML, DirectML, ONNX RT, and WebNN. The lithography of this CPU is based on TSMC N3B technology.

## 3. Supplemental Information

- **Marketing Status:** Launched
- **Launch Date:** Q3'24
- **Embedded Options Available:** No

## 4. Memory Specifications

- **Max Memory Size (dependent on memory type):** 16 GB
- **Memory Types:** LPDDR5X up to 8533 MT/s
- **Max # of Memory Channels:** 2

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## 5. GPU Specifications

- **GPU Name:** Intel® Arc™ Graphics 130V
- **Graphics Max Dynamic Frequency:** 1.85 GHz
- **GPU Peak TOPS (Int8):** 53
- **Graphics Output:** DP2.1 UHBR20, HDMI2.1 FRL 12GHz
- **Xe-cores:** 7
- **Ray Tracing:** Yes
- **Max Resolution (HDMI):** 4096 x 2304 @ 60Hz (HDMI 2.1 TMDS), 7680 x 4320 @ 60Hz (HDMI2.1 FRL)
- **Max Resolution (DP):** 7680 x 4320 @ 60Hz
- **Max Resolution (eDP - Integrated Flat Panel):** 3840x2400 @ 120Hz
- *DirectX Support\**: 12.2
- *OpenGL Support\**: 4.6
- *OpenCL Support\**: 3.0
- **Multi-Format Codec Engines:** 1
- **H.264 Hardware Encode/Decode:** Yes
- **H.265 (HEVC) Hardware Encode/Decode:** Yes
- **H.266 (VVC) Hardware Decode:** Yes
- **AV1 Encode/Decode:** Yes
- **VP9 Bitstream & Decoding:** Yes
- **Intel® Quick Sync Video:** Yes
- **# of Displays Supported:** 3
- **Device ID:** 0x64A0
- **Intel® Deep Learning Boost (Intel® DL Boost) on GPU:** Yes
- **AI Software Frameworks Supported by GPU:** OpenVINO™, WindowsML, DirectML, ONNX RT, WebGPU, WebNN

## 6. NPU Specifications

- **NPU Name:** Intel® AI Boost
- **NPU Peak TOPS (Int8):** 40
- **Sparsity Support:** Yes
- **Windows Studio Effects Support:** Yes
- **AI Software Frameworks Supported by NPU:** OpenVINO™, WindowsML, DirectML, ONNX RT, WebNN

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## 7. Expansion Options

- **Intel® Thunderbolt™ 4:** Yes
- **PCI Support:** 5.0 and 4.0
- **PCI Express Configurations:** 4 (x1,x2,x4) Gen4 + 4 (x2,x4) Gen5
- **Max # of PCI Express Lanes:** 8

## 8. Package Specifications

- **Sockets Supported:** FCBGA2833
- **Max CPU Configuration:** 1
- **Max Operating Temperature:** 100 °C
- **Package Size:** 27.5mmx27mm

## 9. Advanced Technologies

- **Intel® Thread Director:** Yes
- **Intel® Image Processing Unit:** 7.0
- **Intel® Smart Sound Technology:** Yes
- **Intel® Wake on Voice:** Yes
- **Intel® High Definition Audio:** Yes
- **Intel® Adaptix™ Technology:** Yes
- **Intel® Speed Shift Technology:** Yes
- **Intel® Turbo Boost Max Technology 3.0:** No
- **Intel® Hyper-Threading Technology:** No
- **Instruction Set:** 64-bit
- **Instruction Set Extensions:** Intel® SSE4.1, Intel® SSE4.2, Intel® AVX2
- **Thermal Monitoring Technologies:** Yes

## 10. Security & Reliability

- **Intel® Partner Security Engine:** Enhances system protection.
- **Threat Detection:** Intel® Threat Detection Technology (TDT) and Intel® Standard Manageability (ISM) are included.
- **Management Technologies:** Intel® Active Management Technology (AMT) and Remote Platform Erase (RPE) are not supported.
- **Hardware Shield:** The system is eligible for Intel® Hardware Shield, adding extra security layers.

- **Control Features:** Includes Intel® Control-Flow Enforcement Technology, AES New Instructions, Secure Key, and Trusted Execution Technology.
- **Malware Protection:** Features like Execute Disable Bit and Intel® OS Guard help prevent attacks.
- **Boot Protection:** Intel® Boot Guard ensures authenticated software boots.
- **Memory Protection:** Mode-based Execute Control (MBEC) enhances security, while Intel® Stable IT Platform Program (SIPP) is not available.
- **Virtualization Support:** Intel® Virtualization Technology (VT-x), for Directed I/O (VT-d), and Extended Page Tables (EPT) are supported.

11. Associated Systems

System Name	Acronym	Directional	Description
Intel - X	IX	Both	This system manages hardware-level operations for Intel-based devices.
HyperSys	HS	Push	Pushes data to cloud servers for distributed processing.
OptimaNet	ON	Pull	Pulls real-time analytics data from IoT devices.
QuantumCore	QC	Both	Facilitates quantum computing operations for complex tasks.

12. Tech Stack

Laptop Brand	Processor	Version	Usage
Lenovo ThinkPad	Intel Core i9	12th Gen	Business laptops known for reliability and performance.
Dell XPS	Intel Core i7	13th Gen	High-performance laptops for professionals and creatives.

13. Compliance

Standard	Compliance Status
HIPPA	Yes
PCI	No