Datasheet

# Product Carbon Footprint (PCF) Summary for NVIDIA HGX B200

At NVIDIA, we're working to reduce the greenhouse gases (GHGs) associated with our products. Carefully determining the impact of our products is a critical step in that process.

This summary provides insights into the emissions associated with one NVIDIA HGX™ B200 baseboard, from raw material extraction, material transport, and production of components to final assembly of the GPU baseboard (cradle-to-gate). This summary is based on an ISO-conformant, third-party-reviewed product carbon footprint (PCF)[1] commissioned by NVIDIA and performed by WSP.

## About the Product

The NVIDIA HGX B200 propels the data center into a new era of accelerating computing and generative artificial intelligence (AI), integrating NVIDIA Blackwell GPUs with a high-speed interconnect to accelerate AI performance at scale. It features eight NVIDIA Blackwell B200 GPUs, each with 180 GB of HBM3E memory, and uses NVIDIA NVLink™ and NVIDIA® NVSwitch™ for high-speed interconnects. This system is designed for the most demanding AI, high-performance computing (HPC), and data analytics workloads.

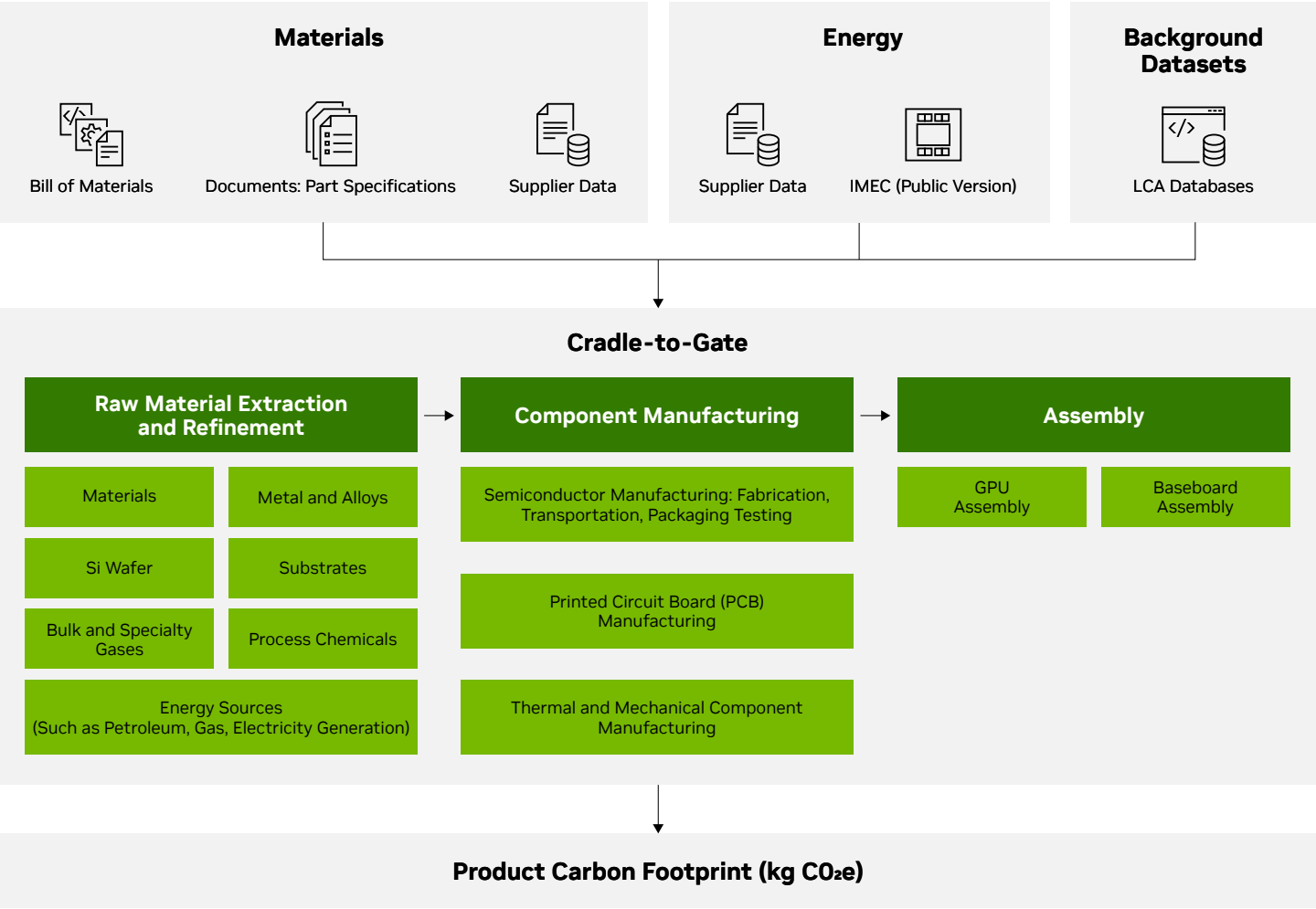
The HGX B200 baseboard can be paired with advanced air or liquid cooling solutions and additional server components, forming a fully optimized, high-performance platform for enterprise and research applications. This PCF summary intentionally excludes use-phase and end-of-life emissions due to the variability in those emissions based on customer usage.

| HGX B200 baseboard | |
|---|---|
| **Product Weight** | 32 kg |
| **Max Thermal Design Power** | Per individual GPU: Configurable up to 1000 W |
| **Form Factor** | 8x NVIDIA Blackwell SXM6 |
| **FP4 Tensor Core*** | 144 PFLOPS |
| **FP8/FP6 Tensor Core*** | 72 PFLOPS |
| **INT8 Tensor Core*** | 72 PFLOPS |
| **FP16/BF16 Tensor Core*** | 36 PFLOPS |
| **TF32 Tensor Core*** | 18 PFLOPS |
| **FP32** | 600 PFLOPS |
| **FP64/FP64 Tensor Core** | 296 TFLOPS |
| **Total Memory** | Up to 1.4 TB |
| **Total Memory Bandwidth** | Up to 62 TB/s |
| **NVLink** | Fifth generation |
| **NVSwitch** | Fifth generation |
| **Total NVLink Bandwidth** | 14.4 TB/s |

* With sparcity

1. A Product Carbon Footprint (PCF) quantifies the total greenhouse gas (GHG) emissions associated with a product throughout its lifecycle, potentially encompassing emissions from raw material extraction, manufacturing, transportation, usage, and end-of-life disposal or recycling. The results are typically expressed in terms of carbon dioxide equivalents (CO2e), which account for all relevant GHGs based on their Global Warming Potential (GWP).

## Scope and Methodology



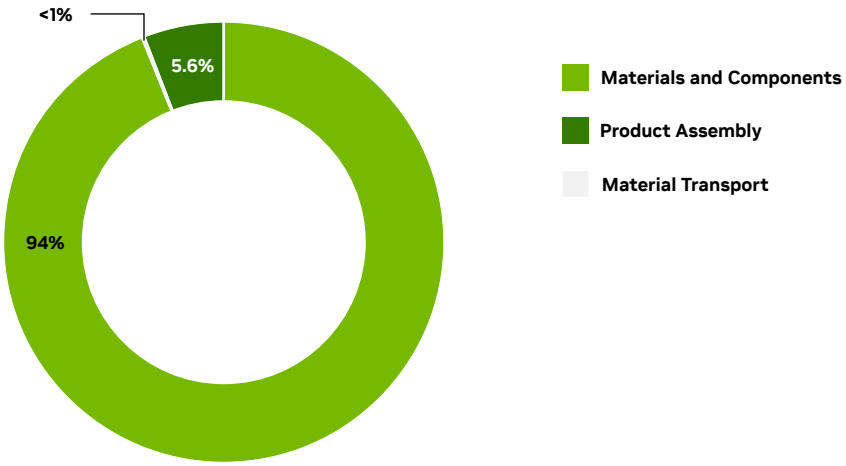

The PCF[2] was critically reviewed in conformance to ISO Standard 14067 on carbon footprints and is aligned with ISO standards 14040 and 14044 on life cycle assessments (LCA). To calculate the carbon footprint, we developed custom PCF models based on primary data from suppliers of critical components (GPU and networking chip fabrication and packaging, thermals, PCBs, interconnects, key ICs, GPU and baseboard assembly). We collected primary data, including material composition data and production energy consumption, for components representing over 90% of the product by weight. This data was combined with secondary data sources, including imec's net.zero tool for fabrication-related emissions, as well as ecoinvent 3.10 and Sphera's LCA databases (Professional Database 2024 and Extension Database XI: Electronics 2024) for modeling materials, transportation, and energy.

2. The PCF was performed using the cradle-to-gate Life Cycle Assessment (LCA) methodology, covering emissions from raw material extraction to the point where it leaves the manufacturing facility.

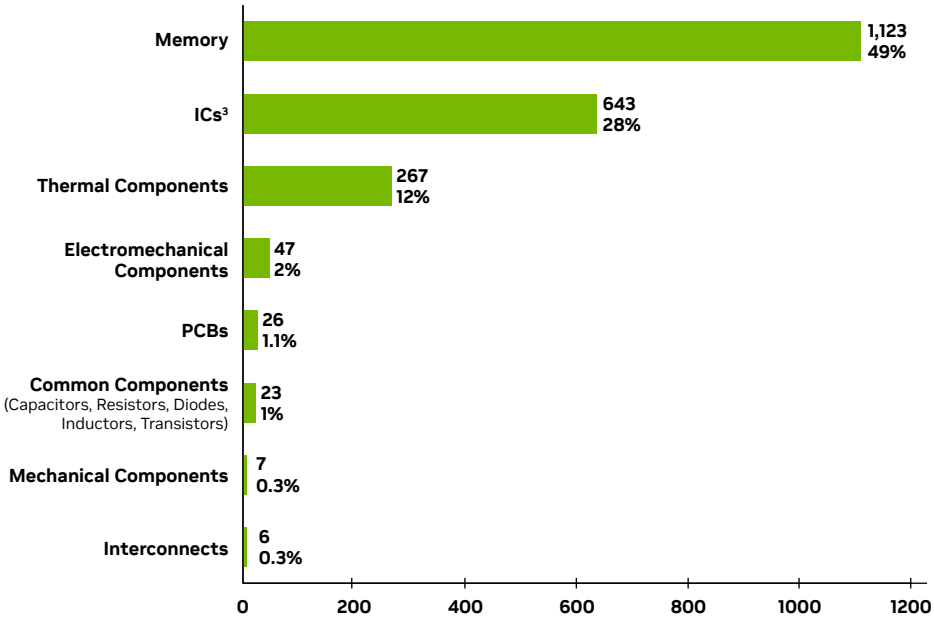
## Results

Our PCF determined that the carbon footprint from cradle-to-gate for one HGX B200 GPU baseboard is 2,274 kg $CO_2e$. The central contributors to these emissions are materials and components, accounting for 94% of the total emissions. The production of high bandwidth memory (49%), integrated circuits (28%) and thermal components (12%) are significant drivers of the carbon footprint. Additionally, the assembly process contributes 5.6% of total emissions, while transportation accounts for only 0.3%.

## % Breakdown by Life Cycle Stage




## HGX B200 PCF: Material Breakdown by Component Type ($kgCO_2e$/unit)




Disclaimer: The information in this document is solely for informational purposes and provides a general overview of potential emissions associated with the NVIDIA HGX B200 baseboard. NVIDIA's estimates in this document are based on currently available data. The information may contain estimates and certain data points and estimation methodologies are subject to change.

3. ICs: Includes GPUs, network processors, and other integrated circuits.

## References

International Organization for Standardization. (2018). Greenhouse gases - Carbon footprint of products - Requirements and guidelines for quantification," International Organization for Standardization (ISO Standard No. 14067:2018). Available at: https://www.iso.org/standard/71206.html

Interuniversity Microelectronics Centre, 2024. Methodology - Overview. [Online] Available at: https://netzero.imec-int.com/methodology [Accessed 3 March 2025].

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Weidema, B. P. et al., 2013. Overview and methodology - Data quality guideline for the ecoinvent database version 3. [Online] Available at: https://vbn.aau.dk/en/publications/overview-and-methodology-data-quality-guideline-for-the-ecoinvent [Accessed 3 March 2025].

Wernet, G. et al., 2016. The ecoinvent database version 3 (part I): overview and methodology. The International Journal of Life Cycle Assessment, Volume 21(9), p. pp.1218–1230. Available at: https://link.springer.com/article/10.1007/s11367-016-1087-8

## Ready to Get Started?

To learn more about the NVIDIA HGX B200 Tensor Core GPU, visit: nvidia.com/hgx