



NANO NAVI

Planned compute



NanoNavi

Self-Localizing Indoor 3D Positioning

Pursuing Low-Micrometre Absolute 3D Positioning

ONBOARD SELF-LOCALIZATION | PRECISION + INTEGRITY | RESEARCH PROGRAMME



LOCALIZE
IN REAL SPACE



MAP
IN 3D



ENABLE
A SMARTER WORLD

X: 1.234567 m
Y: 2.345678 m
Z: 0.987654 m



PEOPLE
ROBOTS
ASSETS
SPACES
IN SYNC

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TOMORROW
INSIDE

The Problem

Indoor Positioning Already Exists.
NanoNavi Targets Precision + Integrity.



Indoor positioning is an established field

Optical iGPS and terrestrial RF systems exist. [1,3]



A relevant optical benchmark

iGPS: 0.25 mm uncertainty at 95% confidence. [2]



NanoNavi's development objective

1–10 μm + room-scale + onboard calculation

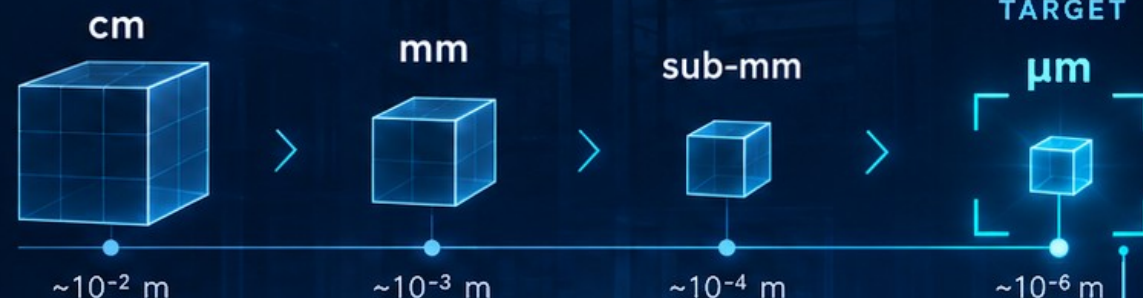


Higher integrity is part of the goal

Uncertainty, fault flags and security testing

Targets, not demonstrated performance. Benchmarks are configuration-specific; sources in the appendix.

ILLUSTRATIVE ACCURACY SCALE



Room-scale self-localization
Precision + integrity targets

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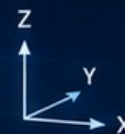
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The Opportunity

A Foundational Positioning Layer
for High-Precision Industries

Planned compute
 **NVIDIA**
Jetson Series

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Advanced Robotics
Precise guidance in qualified workspaces



Semiconductor & Cleanrooms
Positioning within controlled environments



Industrial Metrology
Tool and process localization



Neuro & Surgical Systems
Future clinical research; validation required

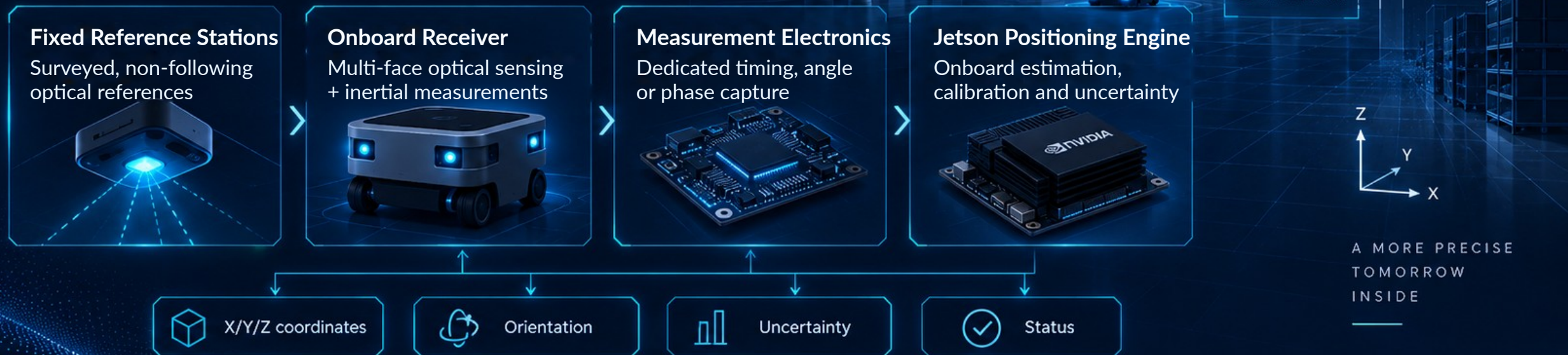
An established field. A new precision and integrity objective.

Target applications, not validated deployments. Industrial development first; clinical research later.



The NanoNavi Solution

The Room Supplies the References.
The Device Determines Where It Is.



DESIGN GOALS: Onboard calculation | Monitored references | Independent validation

Optical paths remain required. Fixed references do not follow the receiver. [6]

Why NVIDIA Jetson

Edge Intelligence for Onboard Self-Localization



Onboard estimation of the receiver's own position and uncertainty



Fuse optical observations, calibration and IMU data on the device



CUDA / JetPack tools for estimation, AI diagnostics and sensor processing [4]



Select the Jetson module around power, heat and workload requirements



Prototype first. Validate motion, latency and recovery with real hardware.



OPTICAL



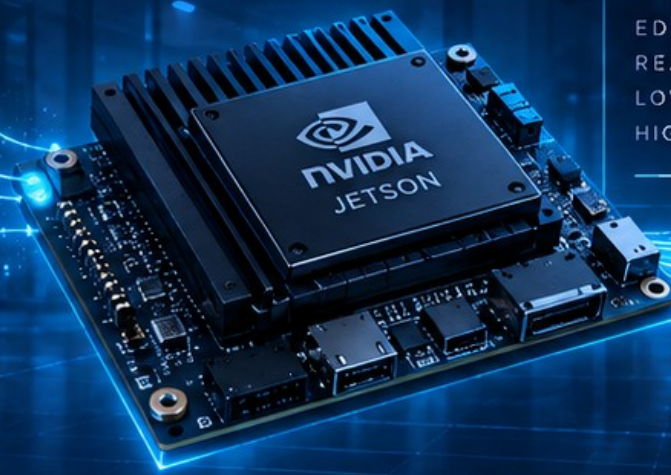
TIMING



PHASE



IMU



EDGE AI
REAL-TIME
LOW LATENCY
HIGH EFFICIENCY



Sensors



Measurement



Fusion



Position



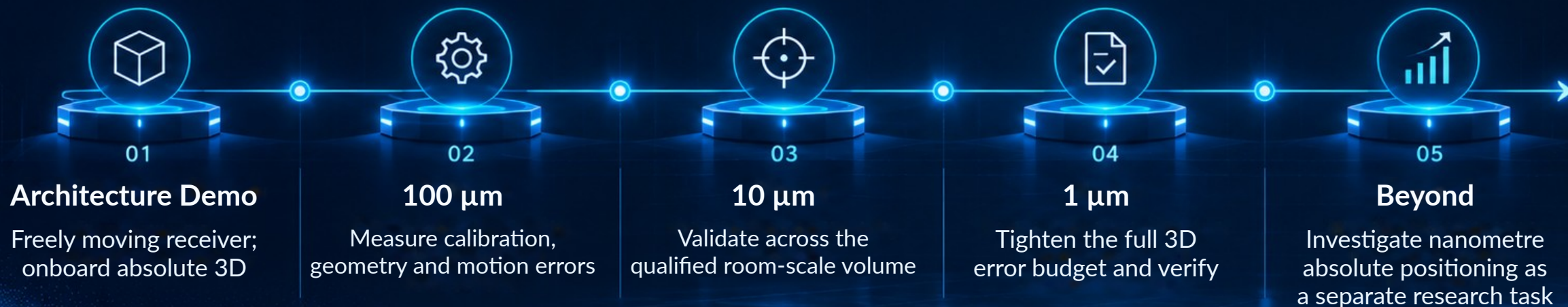
Jetson supplies compute, not a positioning guarantee.

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Roadmap & Milestones

De-Risking the Micrometre Journey Step by Step

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ROBOTS
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IN SYNC



Research targets, not achieved results. Independent verification is required at every stage.

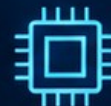
Applications

From Industrial Precision to Neuro-Scale Futures



Precision Robotics

Guidance and control in qualified indoor workspaces



Semiconductor & Cleanrooms

Positioning for highly controlled production spaces

X: 0.1256 m
Y: -0.0374 m
Z: 0.0021 m



Metrology & Spatial Intelligence

Tool and process localization

X: 1.2346 m
Y: 0.9875 m
Z: 0.4561 m

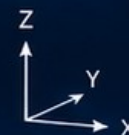


Neuro / Surgical Navigation

Future instrument navigation; separate clinical validation



Industrial validation first. Medical applications require separate clinical development.



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NANONAVI

INVESTMENT THESIS

Building the Positioning Layer for the Next Era of Precision



Potential technical moat

Measurement design,
calibration and integrity



An Airport51 initiative

AI Research Port 51 Inc



Jetson-based development

Onboard estimation for
precision environments



Evidence-led milestones

Accuracy, resilience
and security testing

Use of Funds



Prototype
hardware



Optical
infrastructure



Sensor fusion
software



Calibration &
validation



IP &
partnerships

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Seeking strategic capital and technical partners
to validate a new class of high-integrity indoor positioning.

Trust the position. Know when not to.

High integrity is a design and testing objective, not a certification.

01

MEASUREMENT INTEGRITY

Cross-check references and calibration.
Report uncertainty, measurement age
and degraded or unavailable states.

02

OPERATIONAL RESILIENCE

Test blocked optical paths, drift and
signal reacquisition. Report validity
rather than silently hiding loss of lock.

03

SECURITY ENGINEERING

Define threats; protect configuration
and updates; test signal manipulation
and physical tampering.

Accuracy, measurement integrity and cybersecurity must be validated separately.

Proposed workstream informed by NIST PNT risk guidance. Shielding and onboard compute alone do not prove security. [5]

The ambition is bold. The claims stay measurable.

External benchmarks support context. NanoNavi performance remains to be demonstrated.

[1] Existing optical positioning

iGPS uses fixed optical transmitters and mobile sensors.
Its FAQ describes central position processing.

[7D Kinematic Metrology](#) • [iGPS FAQ](#)

[2] A configuration-specific benchmark

2012 iGPS study: ~1 mm basic / 0.25 mm optimized
expanded coordinate uncertainty, both at 95% confidence.

[Muelaner et al.](#) • DOI: [10.1007/s10845-010-0488-y](#)

[3] Terrestrial RF is also established

Locata describes indoor/outdoor positioning and EC tests.
Its figures are not evidence of NanoNavi security superiority.

[Locata](#) • [account of EC testing](#)

[4] Jetson is the planned compute platform

NVIDIA documents edge modules and CUDA-X / JetPack.
It does not supply a micrometre positioning guarantee.

[NVIDIA Developer](#) • [Jetson modules](#)

[5] Security has its own validation path

NIST IR 8323 Rev. 1 provides PNT risk-management guidance.
The proposed NanoNavi security work is not certification.

[NIST](#) • [IR 8323 Rev. 1 \(2023\)](#)

[6] Project requirements, not measured results

The supplied NANONAVI working document defines the
architecture, optical coverage and independent validation.

[Supplied working document](#) • [architecture and validation](#)

Concept-stage programme. No achieved accuracy, clinical authorization, security superiority or NVIDIA endorsement is asserted.