

Production-ready embedded Linux for *Intel & AMD x86*

A custom Yocto-based platform for industrial SBCs, COM Express / SMARC modules, and edge servers — Intel Atom/Core and AMD Ryzen Embedded. The same rigor as our ARM platforms, on x86.

Validated on **Industrial SBCs & modules · Atom x6000E · Core · Ryzen Embedded**
PREEMPT_RT / Xenomai & hypervisor consolidation

THE PLATFORM

The rigor of our ARM platforms — on x86.

x86 industrial systems are powerful — but rarely reproducible, owned, or consolidated. We bring the same discipline we apply to ARM.

*A reproducible, customer-owned Yocto build for x86 —
with real-time determinism and virtualization-based
workload consolidation on one box.*

Our x86 platform brings the same reproducible, owned, auditable Yocto methodology to x86_64 — industrial SBCs, COM Express/SMARC modules, and edge servers on Intel and AMD embedded silicon. It adds x86-specific strengths: PREEMPT_RT/Xenomai determinism and KVM/ACRN consolidation of real-time, GUI, and connectivity on a single machine.

VALIDATED HARDWARE

Industrial SBCs and COM Express / SMARC modules · Intel Atom x6000E & Core · AMD Ryzen Embedded — edge servers included.

8 yrs

building production
embedded Linux platforms

6

SoC platform families — ~90%
of the embedded Linux market

1

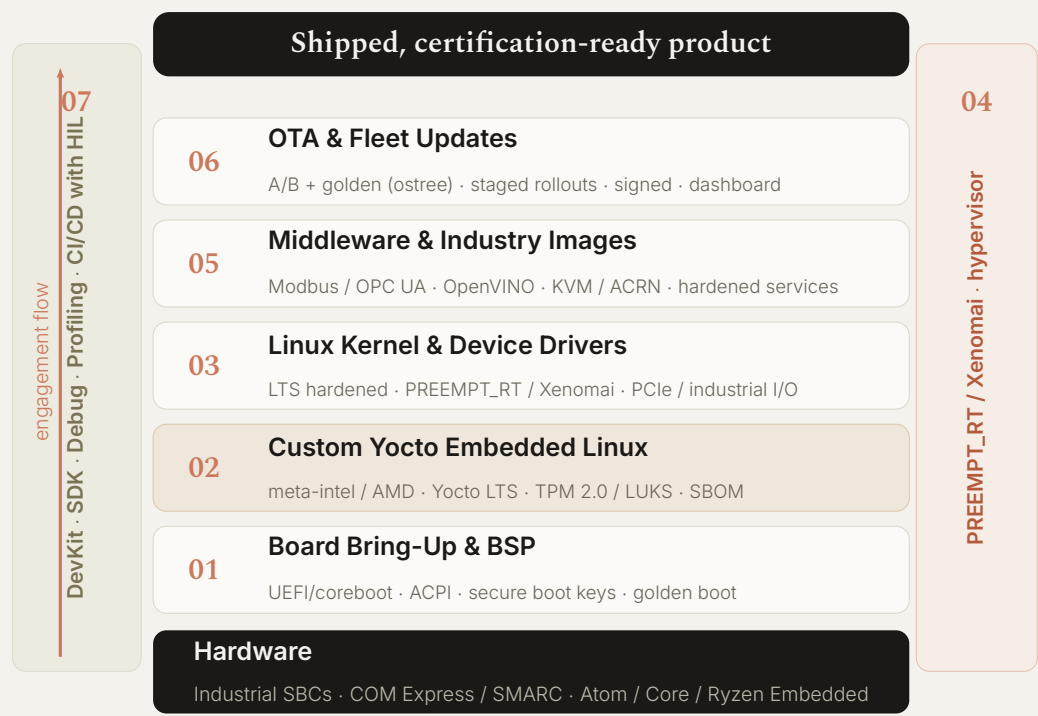
engineering methodology,
applied across every platform

[Add your proof point here] e.g. "Consolidated an RT control stack and an HMI onto one x86 box for a customer via KVM — fewer boxes, deterministic cores." One concrete, anonymized outcome here will do more for credibility than any claim on the following pages. Replace this box before sending.

HOW IT FITS TOGETHER

The platform stack

Hardware comes alive at the bottom and ships as a maintainable product at the top. Developer tooling spans the whole engagement; the real-time domain runs the hard-real-time path alongside Linux.



Each layer is a capability detailed on the following pages.

- Hardware & product
- Owned OS foundation
- Real-time domain
- Spans the engagement

Board Bring-Up & BSP

Your x86 carrier or module boots reliably — from UEFI/coreboot to a health-checked fallback.

The foundation layer: BIOS/UEFI configuration, ACPI review, and a secure, recoverable boot policy.

- **Carrier bring-up** — BIOS/UEFI config, ACPI table review.
- **Custom BSP** — kernel config for the exact peripheral set, out-of-tree driver integration.
- **Smoke test** — PCIe enumeration, storage, network, display, I/O.
- **Custom boot** — UEFI secure-boot key enrollment, coreboot where applicable, boot policy.
- **Golden boot & failsafe** — UEFI entries + health-checked fallback, rollback.

TECHNICAL DETAIL			
Boot chain	UEFI/coreboot→GRUB	Secure boot	Custom keys
Recovery	Golden + health check	I/O	PCIe enumeration

You receive: a custom BSP, secure-boot enrollment, boot policy, golden-boot setup, and a bring-up report.

Custom Yocto Embedded Linux

A reproducible, owned x86 Linux — the same rigor as our ARM platforms.

Bringing reproducible, customer-owned builds to x86_64, with measured boot and disk encryption built in.

- **Reproducible builds** — meta-intel / AMD embedded, Yocto LTS for x86_64.
- **Minimal & locked down** — config minimization, read-only rootfs.
- **You own everything** — source, build system, recipes.
- **Auditable & maintainable** — SBOM, CVE patching, LTS.
- **Manufacturable** — reproducible image across the line.
- **TPM & encryption** — TPM 2.0, measured boot, LUKS disk encryption.

TECHNICAL DETAIL			
Build system	Yocto / BitBake	BSP layer	meta-intel
Security	TPM 2.0 / LUKS	Supply chain	SBOM + signed

You receive: the full source & build system, a reproducible signed image, TPM/measured-boot setup, an SBOM, and docs.

Linux Kernel & Device Drivers

A hardened, deterministic x86 kernel with your PCIe and industrial I/O driven properly.

Shaping and hardening the kernel for determinism and security, with drivers for your custom PCIe and industrial hardware.

- **Kernel customization & hardening** — LTS, config minimization.
- **PREEMPT_RT** — determinism; Xenomai where hard RT is required.
- **Boot streamlining** — UEFI-to-app, kiosk/HMI fast boot.
- **Drivers** — custom PCIe cards, industrial I/O, CAN adapters, Intel/AMD GPU/media stacks.
- **Security** — TPM 2.0, measured boot, LUKS + TPM sealing.

TECHNICAL DETAIL			
Kernel	LTS hardened	Real-time	PREEMPT_RT / Xenomai
GPU	Intel / AMD media	Security	TPM / measured boot

You receive: a tuned, hardened kernel config, custom PCIe/industrial drivers, RT/Xenomai validation, and TPM security setup.

Real-Time & Workload Consolidation

Hard real-time and mixed workloads on one x86 box — deterministic, partitioned, consolidated.

On x86 the real-time story is determinism and consolidation: tuned PREEMPT_RT/Xenomai cores plus hypervisor partitioning that runs RT, HMI, and connectivity side by side.

- **PREEMPT_RT & Xenomai** — config and latency validation on x86.
- **CPU isolation** — IRQ affinity and cache partitioning for deterministic cores.
- **Hypervisor consolidation** — an RT-Linux guest alongside an HMI guest (ACRN/KVM).
- **Jailhouse partitioning** — for safety-adjacent designs.

TECHNICAL DETAIL			
Real-time	PREEMPT_RT / Xenomai	Isolation	CPU / IRQ / cache
Hypervisor	KVM / ACRN	Partitioning	Jailhouse

You receive: RT configuration and latency validation, CPU-isolation setup, and a consolidation architecture (KVM / ACRN / Jailhouse).

Middleware & Industry Images

Ship faster with a hardened, consolidation-ready image instead of a blank build.

Pre-integrated platform variants tuned per industry — the right stack, hardened and ready, on day one.

Industrial
Modbus, OPC UA, TSN, soft-PLC.

Edge & IoT
MQTT, Docker / Podman, edge orchestration.

Vision
OpenVINO / ROCm pipelines, GStreamer, multi-camera ingest.

Virtualization
KVM / ACRN consolidating RT + GUI + connectivity.

Medical / Defense
hardened, audit-ready, SBOM-complete.

Edge Servers
containerized workloads, consolidation.

Also available: kiosk, digital-signage, and gateway variants — or a variant built to your vertical.

PRODUCTION BASELINE — EVERY VARIANT			
Filesystem	Read-only + overlayfs	Resilience	Watchdog recovery
Services	Hardened daemons	Tamper / power loss	Survives both

You receive: an industry image pre-integrated with the relevant stack, hardened to the production baseline.

OTA & Fleet Updates

| *Update a whole x86 fleet in the field, safely, without sending a truck.*

Safe over-the-air updates with a guaranteed way back — image-based or A/B, chained to secure boot.

- **A/B updates** — RAUC / Mender, or ostree image-based, with golden recovery.
- **Auto rollback** — boot counting and health checks.
- **Fleet management** — cloud or on-prem, staged rollouts, delta updates.
- **Dashboard** — upload, target a fleet, monitor, one-click rollback.
- **Signed & secure** — secure-boot-chained signed updates.

TECHNICAL DETAIL			
Engine	RAUC / Mender / ostree	Scheme	A/B + golden
Rollout	Staged + delta	Trust	Secure-boot signed

You receive: a configured OTA pipeline, the update server, the dashboard, and signed-update tooling chained to secure boot.

DevKit, SDK, Debug & Profiling

Your team owns and operates the platform — no black box, no dependency.

Spans the whole engagement: tooling for your own team to develop, debug, profile, and rebuild the platform.

- **Evaluation images** — for common industrial SBCs and custom hardware.
- **Application SDK & Yocto eSDK** — cross-toolchain plus the full build workflow.
- **Debug** — kgdb, kexec/kdump crash analysis, remote gdb.
- **Profiling & CI/CD** — perf, eBPF tracing, boot analysis; HIL.

TECHNICAL DETAIL			
Eval	Industrial SBCs	SDKs	App + eSDK
Debug	kgdb / kdump / eBPF	Pipeline	CI/CD + HIL

You receive: eval images, both SDKs, crash-analysis debug setup, and a CI/CD pipeline with hardware-in-the-loop tests.

WHY US

Why SoC Centric

One engineering methodology, applied with the rigor of a regulated-industry supplier.

- Replaces ad-hoc vendor images with a reproducible, owned, manufacturable platform built to ship.
- You own everything — full source, build system, and documentation. No lock-in, to us or anyone.
- Reproducible Yocto builds with SBOMs — **certification-ready** for ISO 26262, IEC 62304, IEC 61508, and DO-178C environments.
- The same owned, reproducible methodology as our ARM platforms — plus x86 real-time and virtualization-based consolidation.
- Part of a platform family covering ~90% of the embedded Linux market, with one consistent methodology.
- A natural growth path: platform → independent verification & validation → hardware-in-the-loop testing → field data logging.

GETTING STARTED

How an engagement begins

01

Eval image

We send a working platform image for your board to evaluate — no commitment.

02

Architecture call

A 30-minute call to map your hardware, industry, and target to a plan.

03

Pilot

A scoped bring-up + Yocto build on your actual board, with deliverables.

04

Platform delivery

Full source, build system, OTA, and tooling — handed over, owned by you.

GET STARTED

Let's talk

Ready to turn your x86 project into a product?

x86 industrial systems are powerful. We make yours reproducible, owned, and consolidated — a product you can ship, certify, and support for a decade.

→ Request an evaluation image for your board | → Schedule a 30-minute platform architecture call

GET IN TOUCH

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SOC CENTRIC

Production embedded Linux platforms across
NVIDIA Jetson · AMD Xilinx Zynq · NXP i.MX ·
TI Sitara · Intel/AMD x86 · Raspberry Pi.

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