

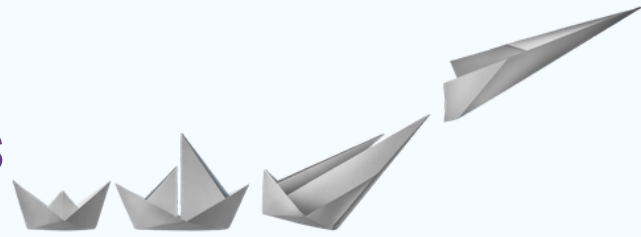


Integrated Engineering for The AI-Led Product Era

HW + Device SW + Digital + AI → One roadmap for connected, intelligent products

In an AI-led product era, OEM competitiveness will depend on three levers - faster product integration, continuous intelligence at scale, and autonomy-ready architectures. MosChip's Integrated Engineering framework delivers all three, enabling predictable development, reduced TCO, and faster monetization across connected and intelligent product lines.

The Evolution of Product Expectations



A decade ago, building a reliable device was enough. Today's OEMs face a new reality

- Products must connect, learn, adapt, and act reliably in the field
- Leaders must manage shrinking cycles, rising expectations, and tighter margins
- Engineering heads need predictable roadmaps, reusable foundations, and reduced integration risk

The Evolution of Product Expectations



Universal Connectivity

Secure, standards-based links between devices, gateways, and clouds for synchronized operation and control.



Embedded Intelligence

On-device inference that detects anomalies, predicts behavior, and optimizes performance locally.



Deep Personalization

GenAI-driven adaptation that tunes product behavior to individual users, usage patterns, and context.



Dynamic Adaptiveness

Real-time adjustment of sensing, compute, and power based on environment and workload.



Autonomy (as a roadmap)

Explainable, governed decision-making with safety, control, and human oversight built in.

Functionality → +Connectivity → +Intelligence → +Personalization → +Adaptiveness → +Autonomy

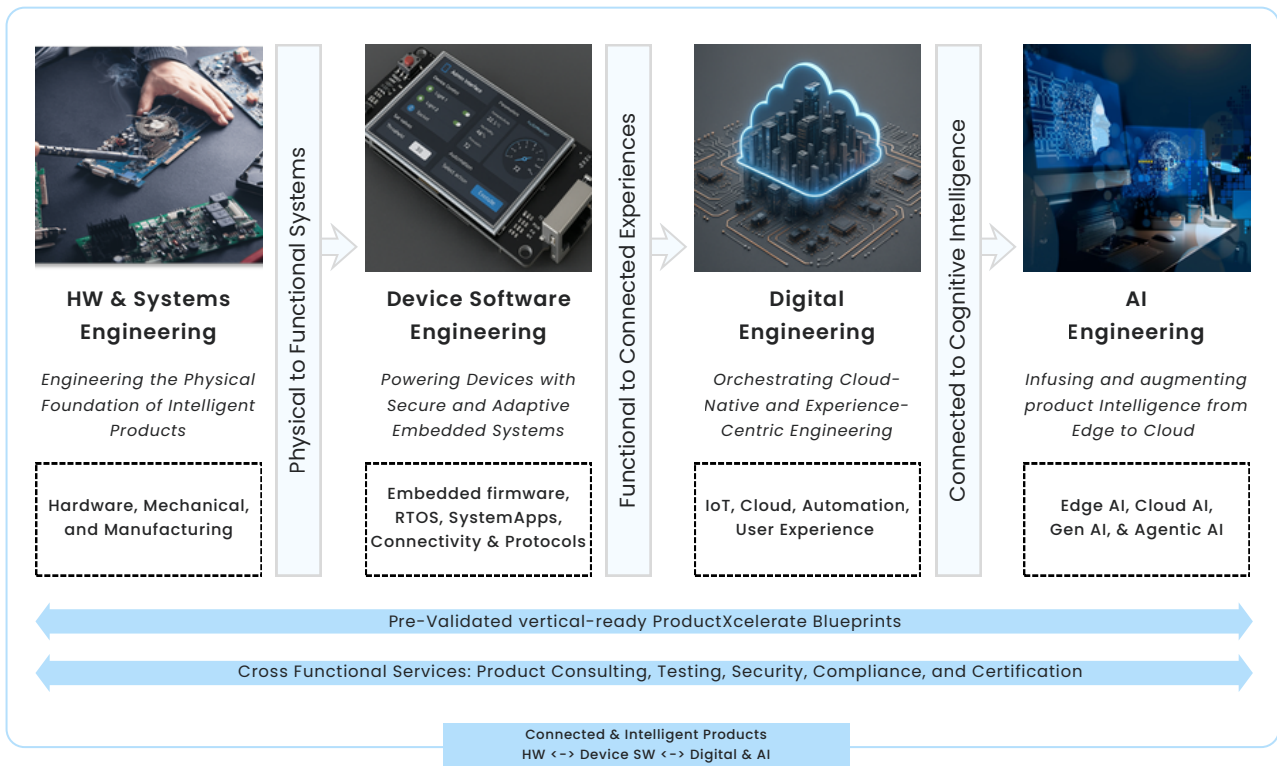
MosChip's Answer

Integrated Engineering - unifying hardware, device software, digital backbones, and AI into a seamless architecture.

Physical → Functional → Connected → Cognitive → Agentic

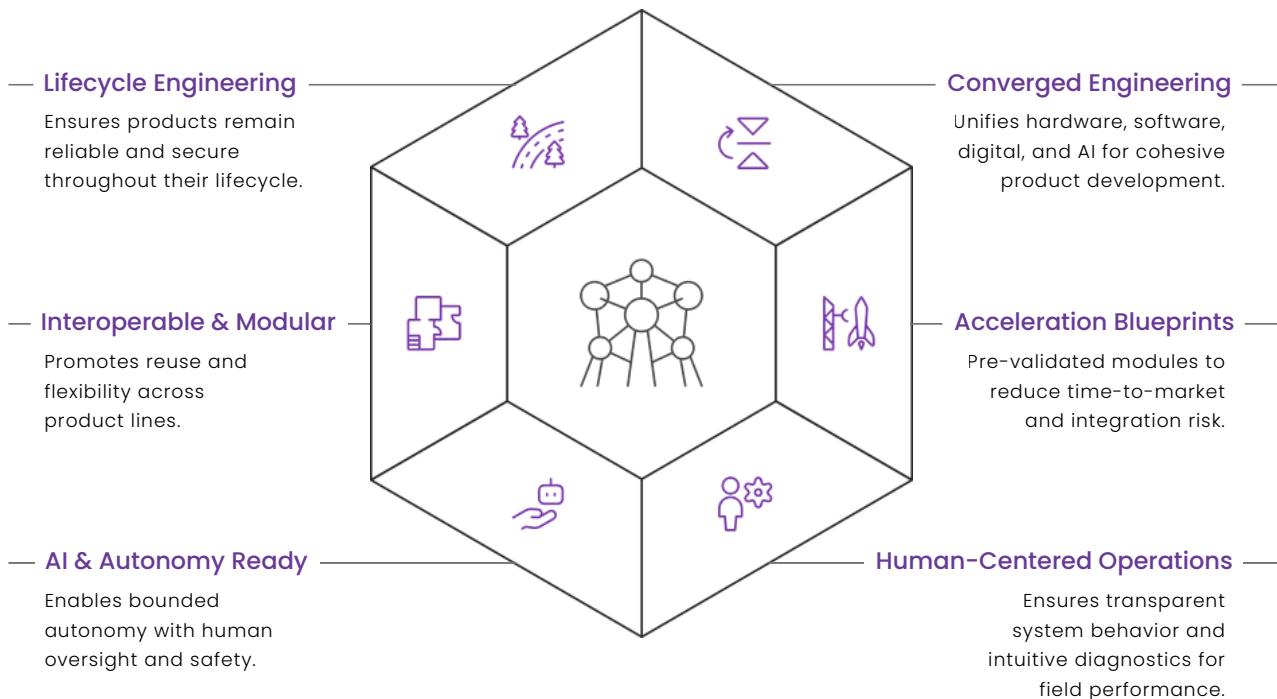
For OEMs, this isn't just an engineering shift - it's a business model enabler: reducing variant costs, enabling feature-on demand, and building post-sale monetization through AI-driven features.

The Integrated Continuum



Integrated Product Engineering Pillars

MosChip's approach is anchored on six foundational pillars that reduce risk and accelerate deployment



Together, these pillars create a predictable, reusable engineering fabric - minimizing integration surprises and ensuring every new product launch builds upon a validated foundation.

MosChip DigitalSky GenAIoT™

The Digital Backbone

Today's products are no longer just physical - they are cloud-connected and AI-native.

DigitalSky GenAIoT is MosChip's modular accelerator suite that provides the device-to-cloud backbone for connected and intelligent products.

Integrated IoT & Connectivity Suite

Secure device onboarding, management, insights, intelligent edge gateway management, adaptive security, etc..

Cognitive Intelligence Suite

75+ core models, 30+ edge models, ~20 GenAI solutions for decision intelligence.

Unified Automation Suite

Streamlined operations through workflow orchestration, RPA and Testing (10+ Automation Agents)

Digital-Native Suite

Composable cloud services and dashboards for operators and users.

DigitalSky enables OEMs to modernize their existing product lines into cloud-managed, intelligent systems - without the burden of re-platforming or rewriting code.

What It Offers:

- Pre-built modules for connectivity, intelligence, automation, and experience engineering
- Plug → Customize → Deploy model for fast POCs and production systems
- Modular architecture for seamless integration with embedded firmware and app layers

With DigitalSky GenAIoT, every product inherits asset visibility, reliable update orchestration, and AI-native pipelines from day one.

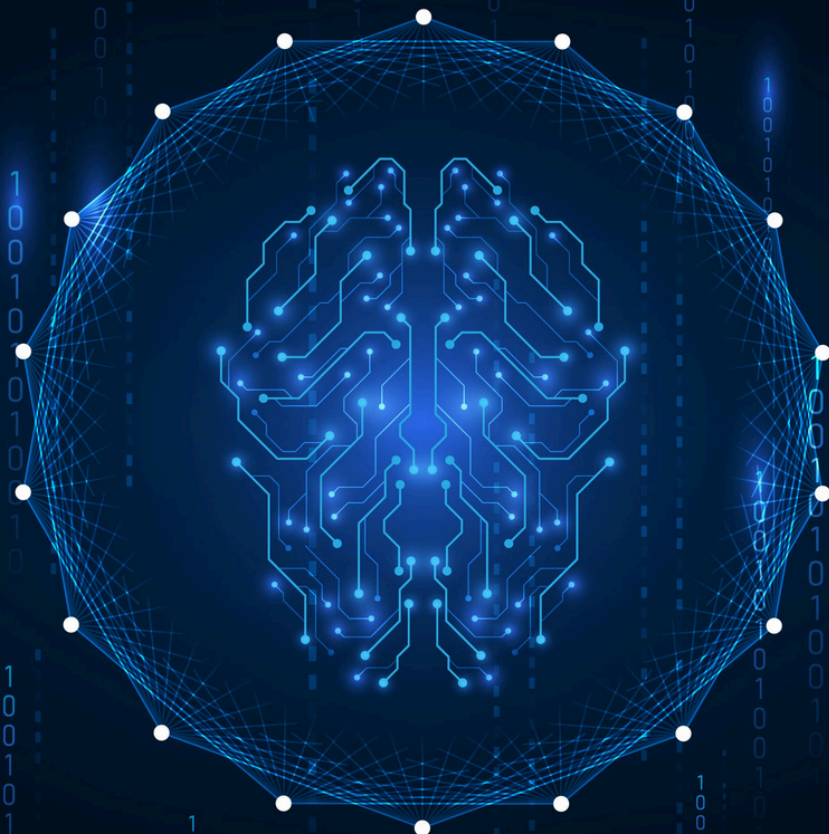
AgenticSky™

From Smart to Agentic Products

DigitalSky connects and manages smart products; AgenticSky makes them proactive companions.

In today's AI-led Product Era, customers expect more from their products - machines that act proactively, adapt to context, and build trust through transparent interactions. For OEMs, however, developing such products has often been slow, complex, and costly.

AgenticSky™ is designed to bridge this gap, helping product teams cut development cycles by up to 40% while embedding autonomy, adaptability, and trusted intelligence into every product.

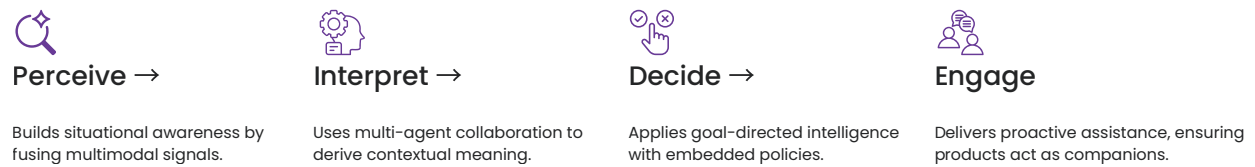


AgenticSky is a suite of AgenticAI accelerators and solutions designed to drive the next wave of adaptive, AI-led product transformation across machines, devices, and edge systems

Two Building Blocks

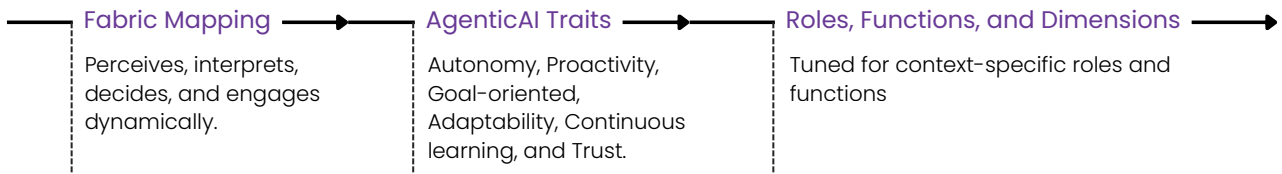
AgenticSky Fabric

A reconfigurable 4-layer framework Perceive, Interpret, Decide, Engage that systematizes agentic behavior with embedded policies and governance.



Agentic Cores built on the Agentic Fabric

Reusable accelerators instantiated on the Fabric.



Together, they allow OEMs to move from reactive "smart" systems to proactive, self-adaptive products - without reinventing the stack for every SKU.



AgenticSky Cores

Pre-built, reconfigurable, Reusable



VisionCore

The Eyes of Products

Purpose: Detect, analyze, and explain what products see.

Use Cases: Quality inspection, safety monitoring, healthcare imaging, retail analytics.

Highlights: Always-on inspector that flags anomalies before failure; evidence-based explainability for operators.



HMI Core

The Interface of Machines

Purpose: Deliver natural, contextual interaction through voice, text, and visuals.

Use Cases: Industrial dashboards, kiosks, vehicle infotainment, building systems.

Highlights: Conversational guidance, transparent reasoning, and personalized decision support.



ControllerCore

The Organizer of Devices

Purpose: Automate setup, calibration, and performance optimization.

Use Cases: Consumer appliances, diagnostic devices, robotics, EV systems.

Highlights: Self-configuring, proactive optimization with guided transparency for every action.



WearableCore

The Companion of People

Purpose: Continuously monitor and coach for health, safety, and performance.

Use Cases: Fitness, elder care, industrial safety, medical wearables devices.

Highlights: Empathetic monitoring, early risk detection, contextual interventions.



RoboticCore

The Hands of Products

Purpose: Act, adapt, and collaborate autonomously to execute physical tasks with precision and intelligence.

Use Cases: Adaptive manufacturing, autonomous assembly, collaborative robotics (cobots), logistics automation, home and industrial service robotics.

Highlights: Self-adjusting execution that learns from variation; real-time coordination with machines and humans; explainable actions that balance speed, safety, and reliability.

From Smart Systems to Agentic Products

Dimension	Traditional Smart System	Agentic Product (Powered by AgenticSky)
Core Behavior	Reactive - responds to commands or triggers	Proactive-anticipates needs and acts purposefully
Decision Logic	Pre-programmed rules and threshold alerts	Goal-driven reasoning using Perceive-Interpret-Decide-Engage (PIDE) Fabric
Learning Ability	Static - requires manual updates or retraining	Continuous-adapts through feedback, usage, and context
Human Interaction	One-way, command-based UX	Conversational, explainable, and context aware HMI
Adaptability	Limited to defined modes or parameters	Dynamic-adapts across environments, users, and conditions
Transparency & Trust	Black-box AI with minimal explainability	Human-overridable decisions with explainable outcomes
Maintenance & Updates	Scheduled and manual OTA updates	Self-diagnosing and self-healing through AgenticSky ControllerCore
Integration Approach	Product-specific stacks, high re engineering cost	Reusable Agentic Cores mapped to product roles (Vision, HMI, Controller, Wearable)
Business Outcome	Incremental improvement, reactive service model	Predictable uptime, feature evolution, new service revenue streams

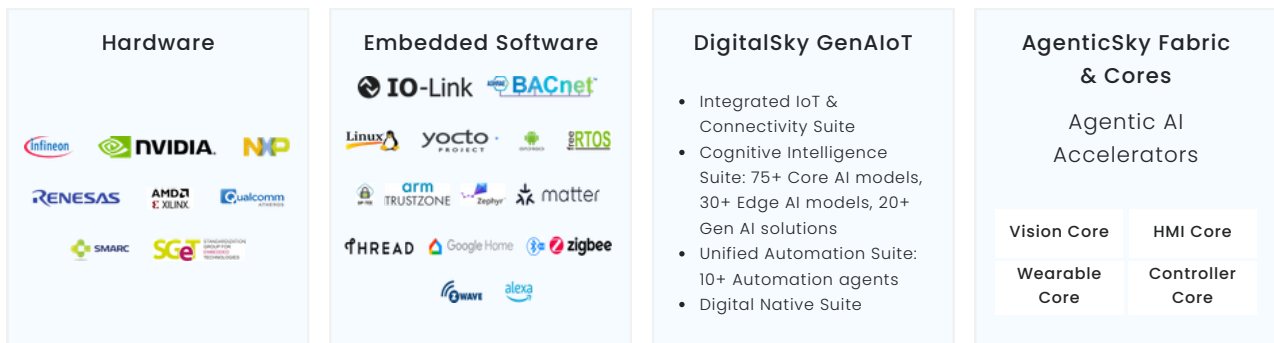
What makes AgenticSky Different

<p>Machine-First Architecture</p> <hr/> <p>Purpose-built for devices not cloud workflows.</p>	<p>Agentic Cognitive Fabric</p> <hr/> <p>Reconfigurable, explainable P→I→D→E fabric.</p>	<p>Reusable Cores</p> <hr/> <p>Configurable accelerators mapped to product roles.</p>
<p>Embedded Continuous Learning</p> <hr/> <p>Improves with every interaction and feedback loop.</p>	<p>Goal-Oriented Autonomy</p> <hr/> <p>Explicit, governed decision paths-not black-box inference.</p>	<p>Human-Centered Trust</p> <hr/> <p>Persona-aware behaviors with transparent reasoning.</p>

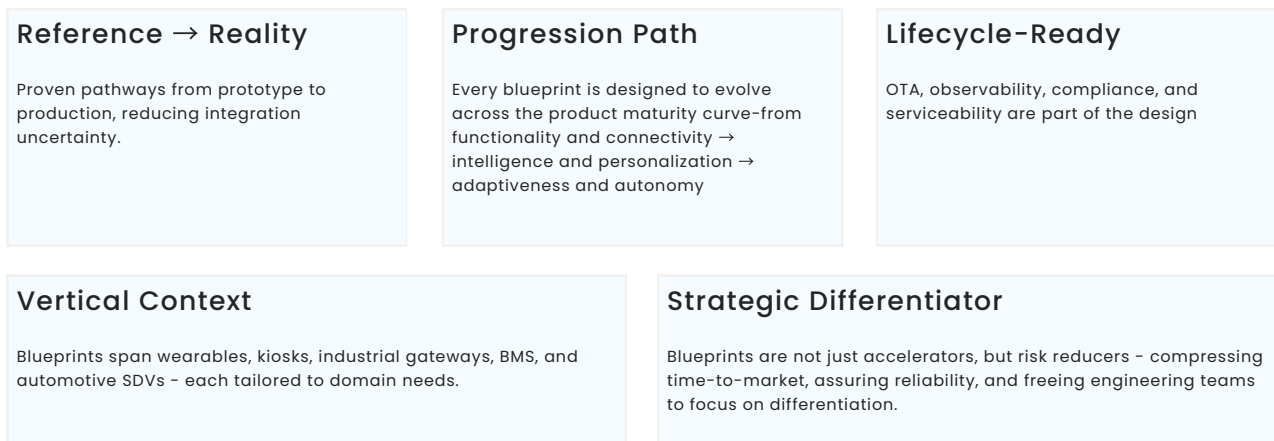
ProductXcelerate™ Blueprints

Accelerating Vertical Product Realization

At the heart of MosChip's offering are ProductXcelerate Blueprints: vertical-ready stacks that integrate Hardware + Embedded + DigitalSky GenAIoT modules + AgenticSky Fabric & Cores, with lifecycle engineering baked in.



Why it matters to OEM Leaders



Blueprints help OEMs cut 30 to 40% of integration effort, accelerate time-to-market, and de-risk certification. From Concept to Certified Product – Faster, Safer, and AI-Ready.

Wearable ProductXcelerate™ Blueprint

(Lifestyle Companion Watch for continuous human-centric interactions 3 NXP i.MX 8Mini + AMOLED)



Moschip accelerates OEM wearable innovation with a Integrated engineering approach: custom Rigid-Flex PCB, Android 15 porting, waterproof enclosure, optimized DigitalSky GenAIoT pipeline, and AgenticSky WearableCore integration for constant human-centric companionship

Hardware Design

- **Processor:** NXP i.MX 8Mini (quad ARM Cortex-A53 + Cortex M4 for low-power tasks)
- **Memory:** LPDDR4, eMMC, SPI NOR
- **Display:** 1.2" Display, MIPI-DSI
- **Wireless:** BLE 5.0, Wi-Fi, LTE
- **Power:** PMIC with ultra-low power modes, optimized battery
- **Enclosure:** Water-resistant wearable form factor

DigitalSky GenAIoT Integration

- **IoT & Connectivity Suite:** Secure onboarding, unified device management
- **Cognitive Suite:** On-device EdgeAI + GenAI models (pose estimation, speech-to-text)
- **Unified Automation:** Bots for OTA firmware updates, regression testing
- **EdgeAI Suite:** Acoustic event detection (falls, alerts), low-light image enhancement

Use Case

Acceleration

-  Real-Time Health Tracking
-  Smart Lifestyle Coaching
-  Elderly Safety & Care
-  Productivity Boost
-  Conversational Assistance
-  Power-Smart Efficiency

AgenticSky Fabric (P -> I -> D -> E) & Cores



Perceive →



Interpret →



Decide →



Engage

Continuous vitals, motion, posture, stress, environment.

Fuse signals with personal baselines to infer wellness, fatigue, risk, readiness.

Goal-directed planning (hydration reminder, rest suggestions, emergency escalation). Prioritize interventions for safety, coaching, habits, and productivity goals.

Conversational, trusted guidance that builds companionship with the user

Wearable Core

Provides continuous companionship to users: proactive wellness alerts, coaching, elderly care safety net

Possible Products & Solutions:

- Elderly care & safety
- Remote patient monitoring in healthcare
- Enterprise wellness (employee wearables)
- Fitness & sports

Ideal for health-tech and enterprise-wellness OEMs seeking faster regulatory validation and AI-native user engagement

Retail Kiosk ProductXcelerate™ Blueprint

(Self-Checkout & Digital Concierge → Qualcomm QCS8250CS)

End-to-end retail kiosk solution built on Qualcomm QCS8250CS SoC with advanced vision, payments, biometrics, and cloud dashboards. Accelerated through high-speed PCB design, Android kiosk UI, DigitalSky GenAIoT suites and AgenticSky HMICore + VisionCore for human centric interaction.

Hardware Design

- **Processor:** Qualcomm QCS8250CS, Kryo 585 + Adreno GPU + AI DSP
- **Memory:** LPDDR5, UFS storage
- **I/O:** Multiple MIPI-CSI (cameras), DSI (displays), USB 3.1, PCIe, GPIOs
- **Peripherals:** Barcode laser scanner, biometric fingerprint sensor
- **Power & Thermals:** PMICs + heat spreader design for 24x7 kiosk ops

DigitalSky GenAIoT Integration

- **IoT Suite:** Device onboarding + secure transaction telemetry
- **Cognitive Suite:** Face recognition, liveness detection, gaze estimation
- **Unified Automation:** Bots for kiosk regression testing, ticket automation
- **EdgeAI Suite:** Object detection, low-light image fixes

AgenticSky Fabric (P → I → D → E) & Cores



Perceive →



Interpret →



Decide →



Engage

Detect faces, head-pose/gaze; watch store movement; read barcodes.

Spoofing signals (print/video replay), anomalous behavior, queue bottlenecks.

Auto-escalate to fingerprint fallback; flag fraud; tune camera/checkpoint policies.

Real-time alerts and transparent explanations to the user & dashboard to staff while Creating natural interactions via conversational UI

Use Case

Acceleration



Smart Self-Checkout



Biometric Login



AI Product Recognition



Audience Analytics



Engagement Dashboards



Biometrics & Camera Tuning



Performance Optimization



On-Device ML Acceleration

HMICore: Friendly Digital Concierge→guides customers, explains product trade-offs, builds trust in decisions
VisionCore: Tracks ad attention, counts visitors, ensures accurate product scans

Possible Products & Solutions:

- Self-checkout in supermarkets, malls, airports
- Digital concierge in auto showrooms (Agentic Car Salesman demo)
- Smart reception desks in offices/hotels
- Smart retail & unattended commerce systems
- Banking kiosks for self-service (account opening, KYC)
- Ticketing terminals in transport hubs

Accelerates deployment of frictionless retail and self-service experiences with transparent, trustworthy AI at the edge.

Industrial Gateway ProductXcelerate™ Blueprint

(Smart Rugged Gateway → NXP i.MX 8M Plus + IO-Link)

A rugged gateway design with IO-Link support, real-time data ingestion, GenAIoT Dashboards, and AgenticSky ControllerCore for self-healing. Designed for industrial environments with validated sensor-to-cloud data pipelines and empower operators with proactive intelligence.

This is industrial product transformation in the AI-led era - faster, safer, and more sustainable

Hardware Design

- **Processor:** NXP i.MX 8M Plus (quad Cortex-A53, integrated NPU)
- **Memory:** LPDDR4, eMMC
- **I/O:** USB, PCIe, Ethernet, CAN, multiple IO-Link M12 connectors
- **Wireless:** Optional LTE/5G modem, Wi-Fi
- **Enclosure:** Ruggedized IP65 aluminum with thermal optimization

DigitalSky GenAIoT Integration

- **IoT Suite:** Device mgmt + Edgeto-cloud ingestion
- **Cognitive Suite:** Predictive maintenance models (vibration anomaly detection)
- **Unified Automation:** CI/CD automation, OTA gateway updates
- **EdgeAI Suite:** Fire/smoke detection, defect detection in factories

AgenticSky Fabric (P → I → D → E) & Cores



Perceive →

Continuously monitor load, sensor feeds, packet loss.



Interpret →

Detect degradation of gateway health (green = good, orange = warning, red = critical).



Decide →

Auto-restart and self heal services, reconfigure IO-Link, reroute data.



Engage

Move health index back to green, updating dashboards in real time.

Controller Core

Self-diagnosis of gateway failures (orange/red→green)
Guides facility staff on efficient usage and future risks

Use Case Acceleration



Multi-Connect



Smart Sense



Live Monitor



Health Alerts



Edge AI



Self-Healing

Possible Products & Solutions:

- Factory and plant monitoring with predictive maintenance
- Energy and utilities automation
- Ruggedized edge gateways for industrial and agri-tech applications

Blueprint for rugged, intelligent industrial gateways that unify sensor-to-cloud operations, predict failures, and self-heal in the field - accelerating safe, sustainable industrial transformation.

BMS Gateway ProductXcelerate™ Blueprint



(Building Management System → NXP i.MX 8M Plus + BACnet)

Next-gen BMS gateway with BACnet/IP integration, leveraging AgenticSky Controller + VisionCore for facility intelligence. Ruggedized hardware + GenAIoT cloud for operational dashboards. It delivers self-healing and proactive optimization, guiding facility managers in maintaining system health

Hardware Design

- **Processor:** NXP i.MX 8M Plus with NPU
- **Memory:** LPDDR4, eMMC
- **Connectivity:** BACnet/IP, Ethernet, Wi-Fi
- **Enclosure:** Rugged IP-rated industrial box
- **Power:** Optimized PMIC with UPS fallback support

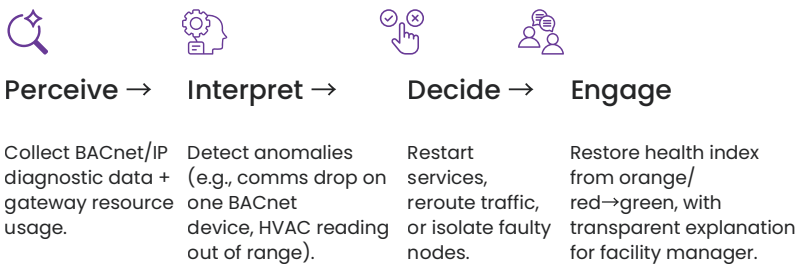
Use Case Acceleration

-  Smart Device Connectivity
-  Real-Time Energy Visualization
-  Predictive Maintenance
-  Facility Insights Dashboard

DigitalSky GenAIoT Integration

- **IoT Suite:** Secure onboarding of sensors, unified mgmt
- **Cognitive Suite:** Energy optimization AI, occupancy prediction
- **Unified Automation:** Bots for automated report generation, ticket logging
- **EdgeAI Suite:** Fire/smoke detection, anomaly detection on HVAC logs

AgenticSky Fabric (P → I → D → E) & Cores



ControllerCore + VisionCore
Auto-detects and self-restores gateway health while also guiding facility engineers to resolve HVAC faults, optimize schedules

Possible Products & Solutions:

- Commercial buildings & office monitoring
- Data centers energy & cooling optimization
- Smart campuses & hospital management
- Smart city infrastructure hubs
- Airports/stadium BMS monitoring

Blueprint enables facility intelligence, energy optimization, and autonomous fault recovery - all validated on NXP i.MX platforms.

Automotive SDV Gateway ProductXcelerate™ Blueprint

(Software-Defined Vehicle → NXP S32G + SOAFEE + AWS Cloud)

Moschip's Automotive ProductXcelerate Blueprint showcases how automotive OEMs can achieve OTA-driven product transformation and standards-based interoperability, reducing risks while accelerating development. Demonstrated end-to-end SOAFEE-based SDV reference, integrating NXP S32G hardware, AWS FleetWise pipelines, OTA updates, and AgenticSky ControllerCore for self-healing ECU functions.

Hardware Design

- **Processor:** NXP S32G automotive-grade SoC
- **Memory:** Automotive LPDDR4, eMMC
- **Connectivity:** CAN, LIN, Ethernet AVB
- **Enclosure:** Rugged, automotive enclosure design
- **Power:** Automotive PMIC with load management

DigitalSky GenAIoT Integration

- **IoT Suite:** Secure edge-cloud ECU telemetry
- **Cognitive Suite:** Predictive analytics for vehicle health
- **Unified Automation:** Regression test automation, OTA pipelines
- **EdgeAI Suite:** Driver monitoring, object detection models

AgenticSky Fabric (P → I → D → E) & Cores



Perceive →

Collects live ECU signals, CAN data, and OTA package state.



Interpret →

Analyzes patterns to detect faults, miscalibrations, or unsafe updates.



Decide →

Chooses corrective action as per health index goals



Engage

Executes fixes (OTA, calibration) and transparently informs

ControllerCore

Self-healing of ECU anomalies,
proactive ECU calibration
Guides technicians during upgrades

Use Case Acceleration



Tire & CAN Monitor



Fleet Dashboards



Secure OTA Updates



ECU Diagnostics



Standards Ready



Self-Healing Core

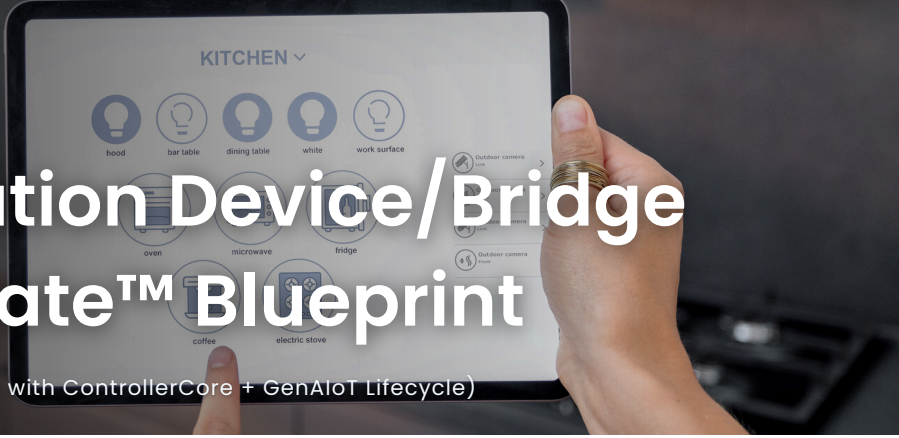
Possible Products & Solutions:

- SOAFEE-based SDV Reference Platforms for passenger and light-commercial vehicles
- Fleet Ops Dashboards with predictive maintenance and OTA health management
- Connected Gateway ECUs with self-healing and over-the-air diagnostics
- ADAS/Autonomous R&D Testbeds for Tier-1 & OEM innovation labs
- EV Ecosystem Integration → smart charging, V2X, and V2G enablement
- Edge-Cloud Telemetry Gateways for connected mobility and digital twin validation

Blueprint for OEMs accelerating their shift to SOAFEE-based SDVs with secure OTA, self-healing ECUs, and predictive fleet intelligence.

Home Automation Device/Bridge ProductXcelerate™ Blueprint

(Infineon PSoC6 Matter-Ready Device/Bridge with ControllerCore + GenAIoT Lifecycle)



MosChip's Home Automation Blueprint accelerates the development of Matter-compliant devices and bridges - enabling OEMs to deliver interoperable, self-healing, and energy-efficient home automation systems. Built on the Infineon PSoC6 platform, this blueprint demonstrates secure onboarding, OTA management, cognitive automation, and adaptive recovery for connected home ecosystems.

Hardware Design

- **Processor:** Infineon PSoC6 (Dual-core 150 MHz Arm Cortex-M4 + 100 MHz Arm Cortex-M0+)
- **Memory/Storage:** 512-Mbit Quad SPI NOR Flash + 4-Mbit Quad SPI F-RAM; 2 MB Flash + 1 MB SRAM
- **Connectivity:** Wi-Fi (2.4 GHz + 5 GHz) /Bluetooth 5.0 (BR/EDR/LE)
- **Wireless Module:** Murata CYW43012 (Type 1LV Wi-Fi + Bluetooth combo)
- **I/O Interfaces:** CapSense slider & buttons, 13 SCBs (I²C / SPI / UART), analog blocks and programmable digital blocks
- **USB Support:** Full-speed USB device + host interface
- **microSD Interface:** Supported (SDIO/SPI) via onboard slot
- **Operating Voltages:** 1.8 V 3 3.3 V board range (USB 4.5 3 5.5 V input)
- **Enclosure:** Compact, low-power, Matter ready bridge design for smart home deployment.

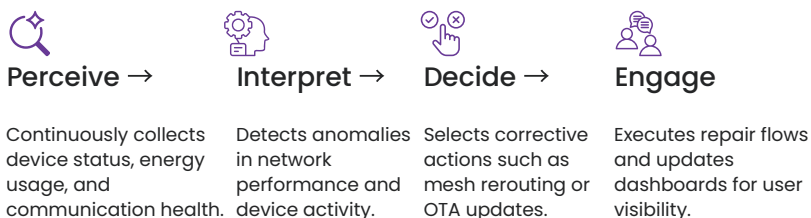
Use Case Acceleration

- Matter Ecosystem
- Secure Onboarding
- Energy Dashboards
- Cognitive Automation
- Reliable Mesh Network
- Unified Automation

DigitalSky GenAIoT Integration

- **Lifecycle:** Secure onboarding, OTA updates, recovery workflows.
- **Cognitive Suite:** Adaptive user behavior models for personalized automation.
- **Unified Automation:** Regression bots for continuous validation and OTA test automation.
- **Dashboards:** Usage, energy efficiency, and anomaly visualization.

AgenticSky Fabric (P -> I -> D -> E) & Cores



ControllerCore

Functions: Mesh rerouting, fault recovery, adaptive automation, and proactive network optimization.

Possible Products & Solutions:

- Smart home hubs and bridges
- Energy-saving automation suites
- Smart lighting and scene controllers
- Safety and security systems
- Appliance and environment control units

Blueprint for Matter-ready home automation devices and bridges that combine secure connectivity, AI-driven automation, and self-healing reliability - enabling OEMs to accelerate interoperable smart home ecosystems.



ASICs to AI Engineering



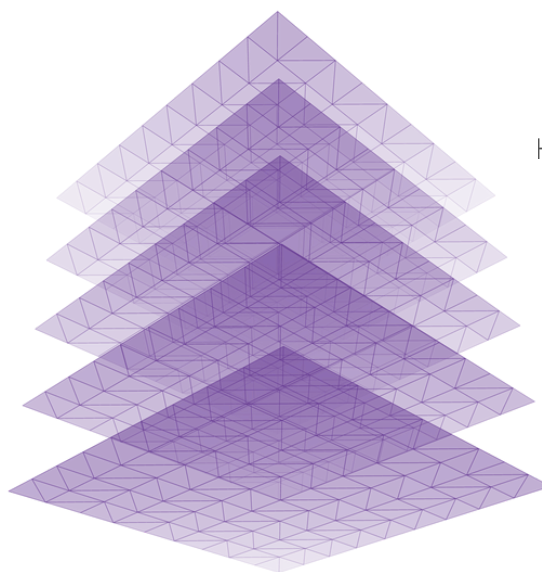
MosChip® Technologies partners with leading global enterprises and technology innovators, providing comprehensive silicon and product engineering services. Leveraging over 25 years of expertise in chip design, hardware engineering, embedded software, cloud computing, and AI solutions, we empower clients to build next-generation intelligent products and solutions that drive transformative change across industries.

Silicon Engineering

Turn-Key ASIC

Design Services

IP Services



Product Engineering

Hardware & Systems Engineering

Device Software Engineering

Digital Engineering

AI Engineering



GenAIoT™



ProductXcelerate™



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