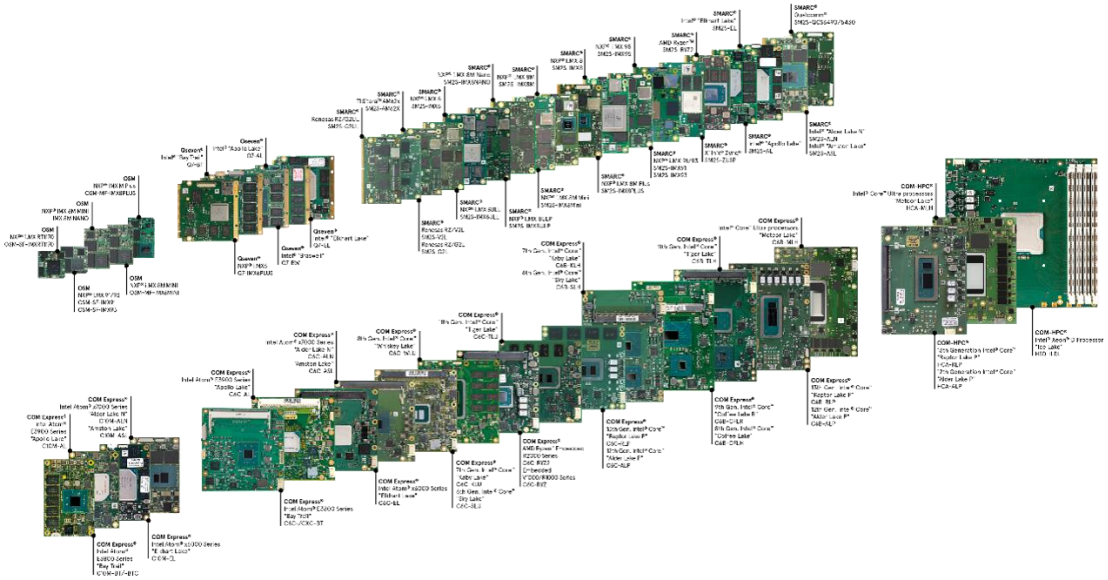
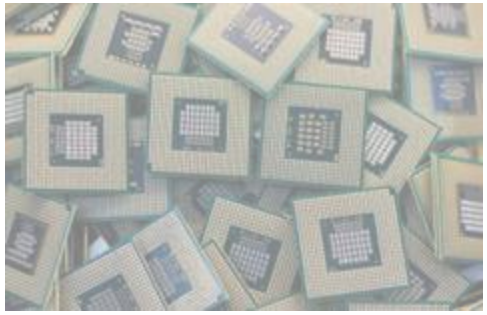
Buy vs. Chip-Down Design
Why OEMs Are Rethinking Embedded Design

Tiitus Aho | Tria Technologies

Global Technology Lead I Soul of the Embedded Computing





What are the impacts of your choice

- Market pressures: faster time-to-market, AI at the edge
- Increased safety & regulatory complexity
- Global supply chain volatility & trade wars

Your design choice impacts speed, risk, and profitability

Chip-Down – The Traditional Path

- Custom PCB, bare silicon
- Maximum flexibility, optimized cost at huge volumes
- **BUT**: long cycles, higher risk, maintenance burden, no future proof

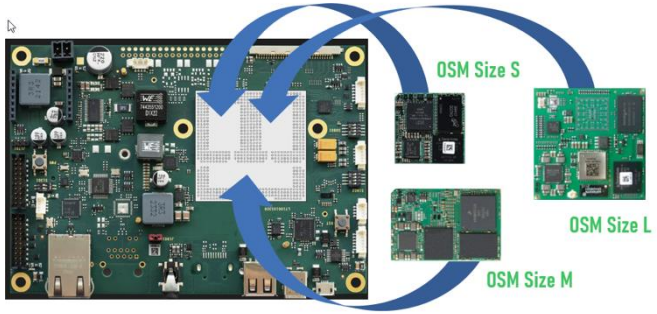
Where Chip-Down Breaks

- ✓ High-speed design complexity (DDR, PCIe, MIPI)
- ✓ Complex supply chain
- ✓ Compliance challenges
- ✓ Lifecycle risk (EOL parts)
- ✓ Expensive engineering talent & equipment needed

What is a Computer-on-Module?

- Pre-engineered quality core + carrier board flexibility
- Standards: SMARC, OSM, COMe, COM-HPC,
- De-risks high-speed design, accelerates integration

Designed, Manufactured, Supported, Maintained



COM-HPC®

SMARC module

OPEN STANDARD MODULE™

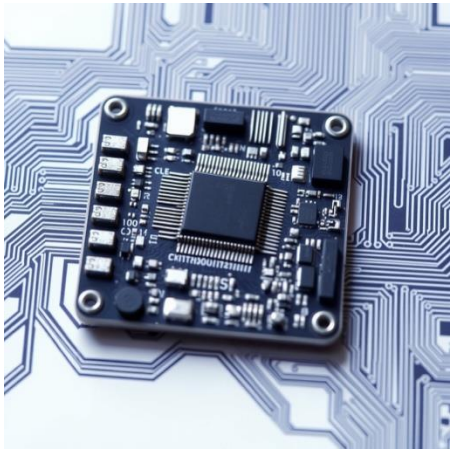
Business Case – 5 Key Advantages

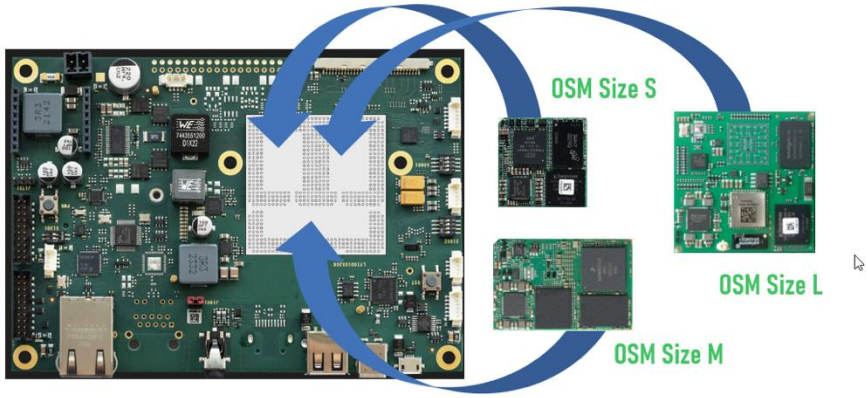
1. Time-to-market = time-to-profit
2. Capital efficiency
3. Maintenance & lifecycle management
4. Risk & compliance sharing
5. Strategic focus on application differentiation

Case Example – Machine control OEM with Smarc

- Tie-1 OEM machine manufacturer used Tria's imx8nano Smarc
- 16 months faster to market
- Zero bring-up issues
- EMC passed first roundAbility to scale in to multiple current and future applications

Bottlenecks Solved with CoMs





Chip-Down Bottlenecks		CoM Solution:
✓ Lengthy design cycles	⇨	Pre-validated of the shelf modules
✓ Scalability challenges	⇨	Modular scalability
✓ Compliance delays	⇨	Pre-certified components
✓ Sofware integration	⇨	Supported software platform
✓ Maintenance burden	⇨	Drop-in upgrades & replacements

Objections & Myths

"Chip-down is cheaper"

”We need full control"

”What if vendor disappears?"

”Our application very specific”

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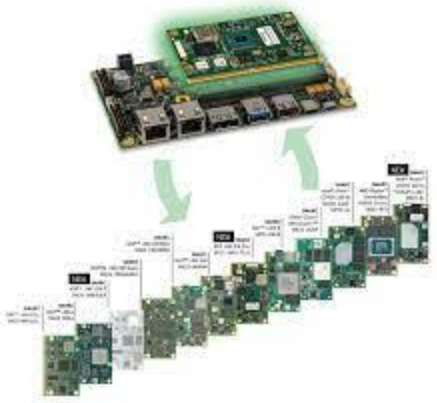
OPEN STANDARD MODULE™

SMARC module

COM Express

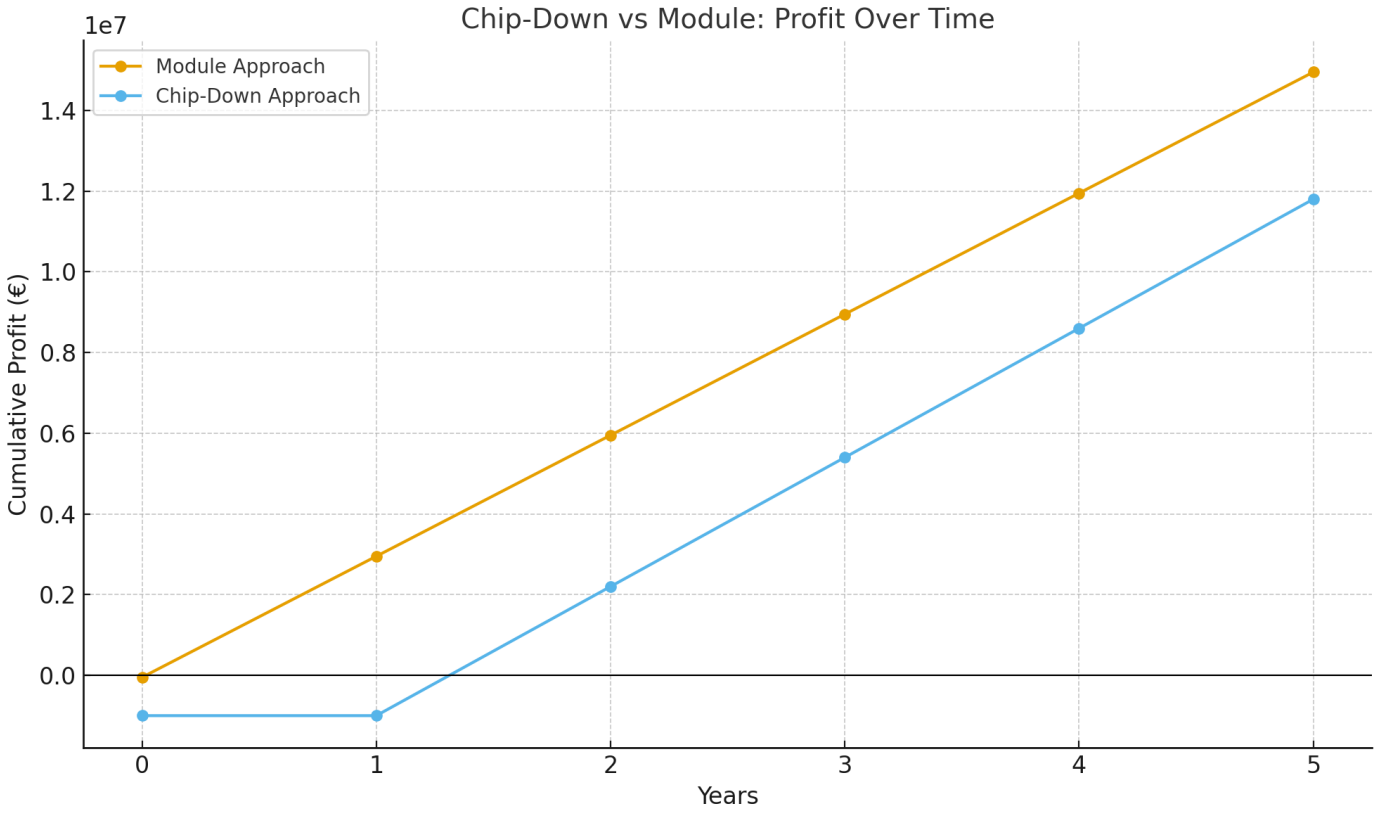
COM-HPC®



Reality Check

CoMs ARE cheaper over lifecycle cost

- Carrier = enough customization
- Standardization = multiple vendors



Strategic Lens – Beyond Engineering

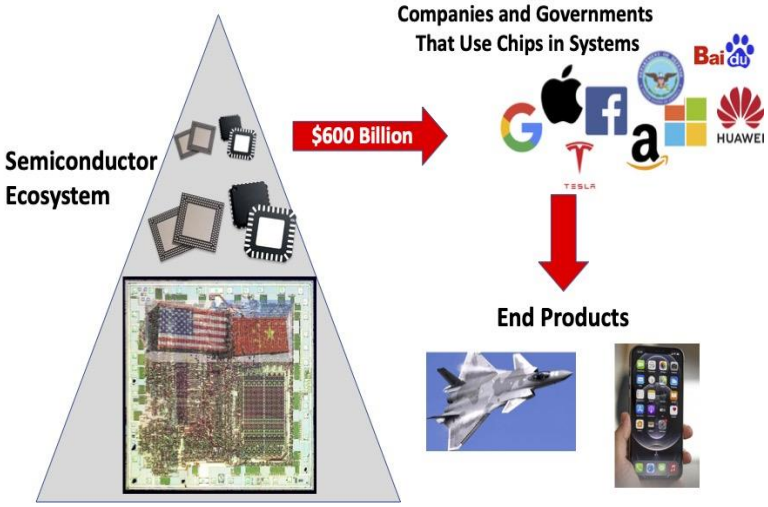
CoMs impact:

- ✓ Faster revenue ramp (finance)
- ✓ Leaner teams can focus (HR)
- ✓ Regulatory compliance (legal)
- ✓ Lifecycle resilience (strategy)

The Future is Modular

- AI acceleration
- Security requirements
- Multi-supplier ecosystems
- Accelerated technology development

⇨ **Impossible to handle efficiently with chip-down**



Key Takeaways

- Chip-down ⇨ Complexity risk, slower ROI, gaps in knowledge
- **CoMs** ⇨ **S**peed, **R**esilience, **P**rofitability, **F**uture Proof

Not just technical — it's strategic

Thank You!
Let's Talk

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