Over 20 Years Providing
Complete ASIC & COT Solutions

AAI company Presentation

www.avnet-asic.com

AAI Positioning

AAI is a World Class ASIC Design and manufacturing House (as quoted by our customers and suppliers)

AAI is Number One ASIC Design Center in Israel, serving fabless & OEM companies in Israel and Worldwide

AAI is a subsidiary of Avnet Inc. (largest electronics distributor in the world)
AAI is a stable and profitable company, serving customers for over 20 years in an extremely demanding and volatile market.

AAI has established cooperation agreements with the world's leading ("Tier 1") Silicon, IP, CAD, Assembly and Test vendors

AAI is a "One Stop Shop" for ASIC design and implementation
(Spec to RTL to GDSII, Analog Design, Structured ASIC, Transfer to Production and Manufacturing)

AAI Mission

AVNET ASIC ISRAEL

To maintain high quality design standards and business ethics while securing **first-time-silicon-success** at **fast time-to-market** and time-to-production

To identify and execute key ASIC & COT programs and provide custom solutions and flexible services for all phases of the design cycle to fabless companies and OEMs

To provide our customers **flexible business models** and interface points to best fit their application requirements and their capabilities

To supply our customers with complete **design** and **T/K manufacturing** solutions, i.e. RTL logic design, RTL to GDSII, assembly/test and devices supply

Core Business

AVNET ASIC ISRAEL

1

- **ASIC/SoC Design and Implementation:**
  - Logic Design
  - IP Integration
  - RTL to GDSII Flow (Synthesis, Layout, Formal, DFT, etc.)

2

- **Transfer to production and manufacturing services**
  - Test and Package Development
  - Quality and Reliability
  - Production Logistics Management

3

- **Design Conversions:**
  - **FPGA → ASIC** - for lower cost and power and higher performance
  - **ASIC → ASIC** – pin compatible solutions for performance upgrade (power and frequency), cost reduction, End of Life , manufacturing transition.

4

- **Custom Analog - Design and Production**

Advantages of Asic

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- Custom solutions
  (no available off-the-shelf devices)
- Create Proprietary Systems
  (ASIC is unique)
- Long Product Life
  (not depending on device suppliers)
- Cost Reduction for Mass Production
  (System-on-Chip)
- Improve Performance, Less Power, Less PCB area
  (better reliability)
- FPGA → ASIC Conversions in Mass Production
- ASIC → ASIC Conversion
  (EOL, performance upgrade, features)

Experience in markets and applications

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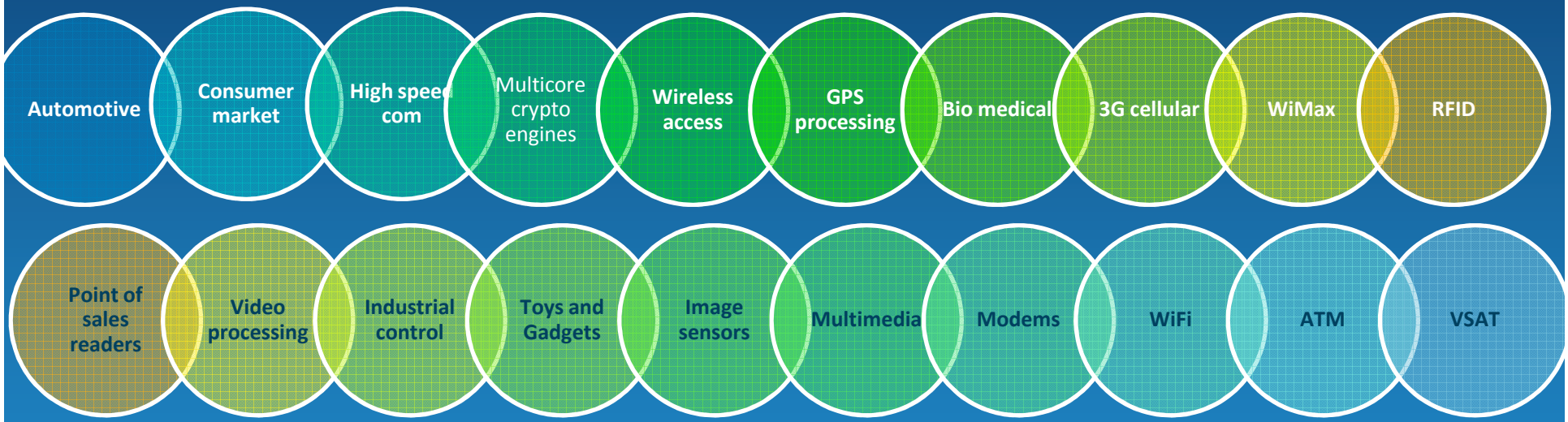

AAI Proven path to silicon - Some examples.

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FIRST
WiMAX chip
in the world,
90nm NXP.

FIRST
multi-core Crypto-engine chip , first design at Europe
65nm Fujitsu.

FIRST
MDTV receiver chip with power consumption 60uW in average. 90LP TSMC.

FIRST
uncompressed WHDI Chipset (receiver + transmitter) for HDTV applications.
90GP TSMC.

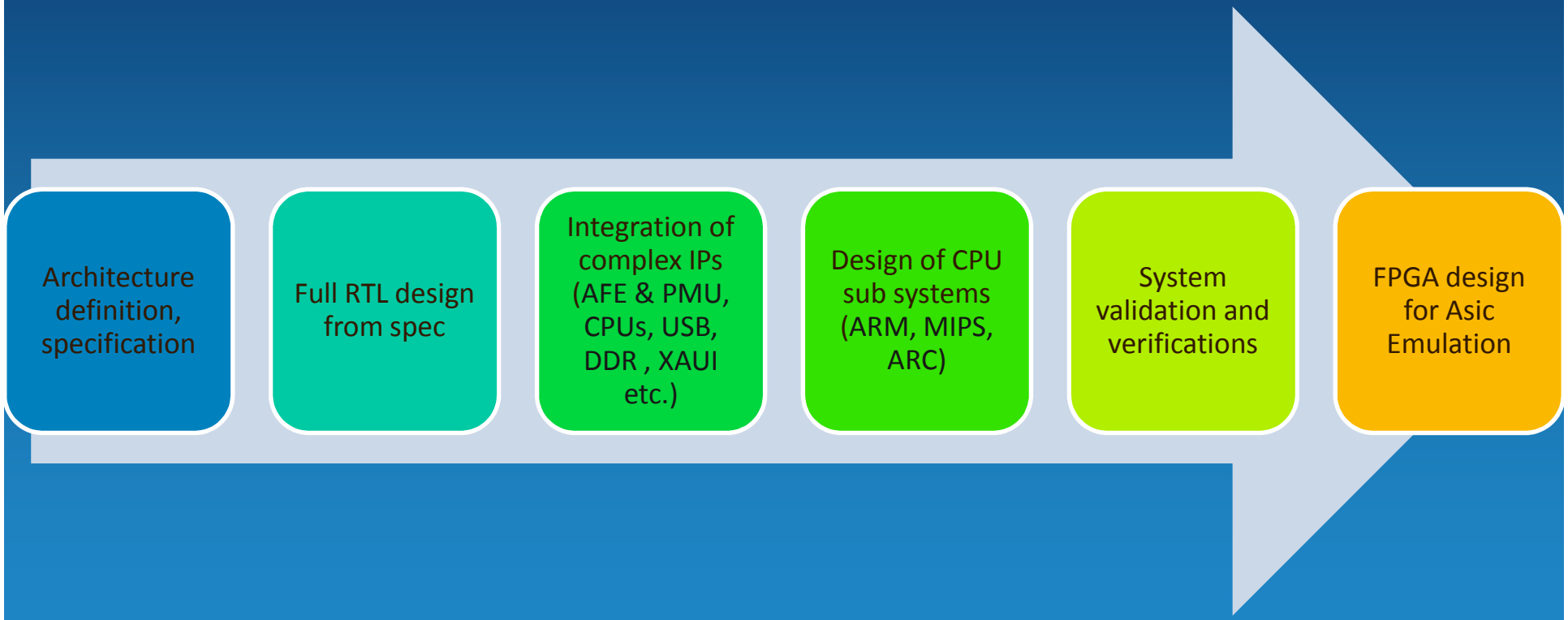
FIRST
DuoSense Digitizer for tablets and laptops.
90nm Fujitsu.

GSM Backbone Network Processor.
60M Gates, 24 Mb SRAM, mixed signal, FlipChip
at 65LP TSMC.

AAI unique Expertise

- Deep-sub-micron (0.18u, 0.13u, 90nm, 65nm, 40nm, 28 nm) System-on-Chip
- System architecture in CPU environment (ARM, MIPS, ARC)
- Mixed Signal and Full Custom analog designs (A2D, D2A, PMU, LP OSC etc.)
- IP integration and verification (ARM, MIPS, USB3.0/2.0, PCI-Ex Gen2, DDR2/3, XAUI, etc.)
- Design for test and automatic test pattern generation (ATPG)
- Design methodologies for low power applications
- Design for manufacturability (DFM): yields, quality, reliability
- Advanced assembly techniques: CSP, Flip-Chip, BGA, MCP/SIP
- Test program and test hardware development and debug

Logic design flow



Asic design flow

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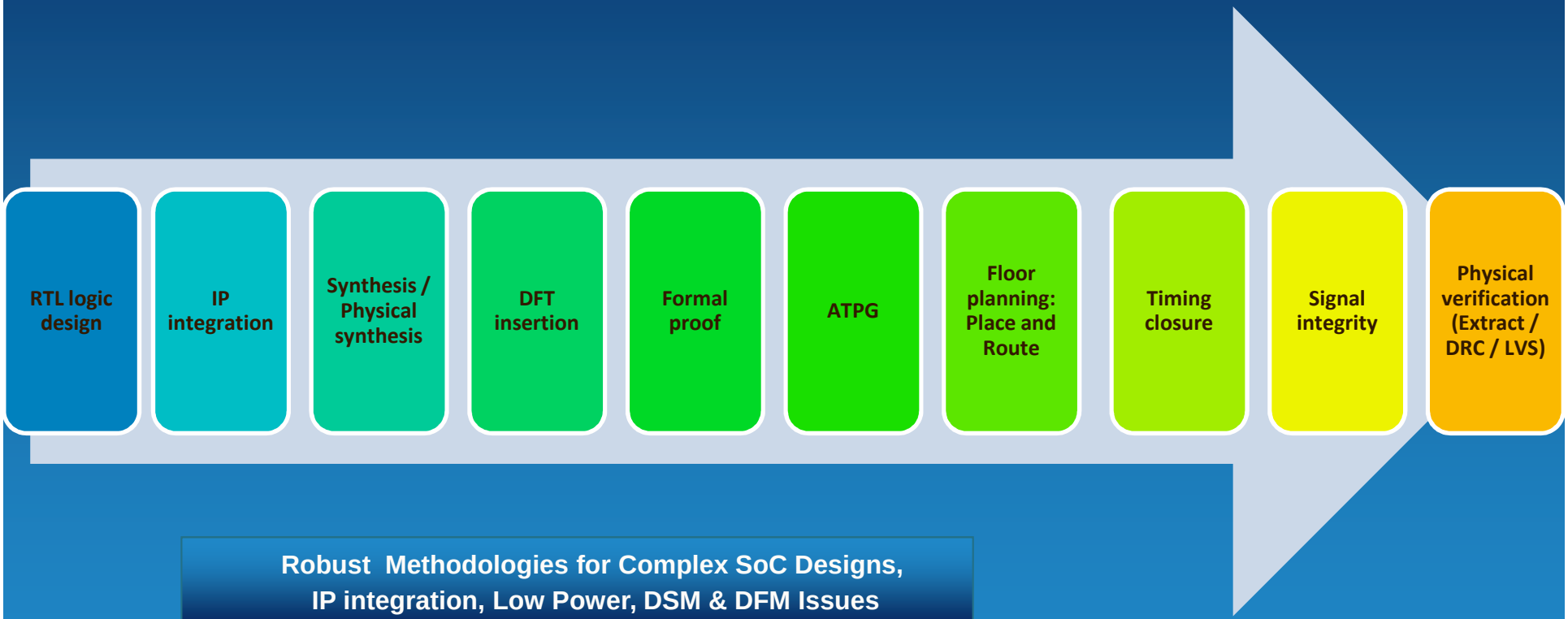

Robust Methodologies for Complex SoC Designs,
IP integration, Low Power, DSM & DFM Issues

Analog design expertize

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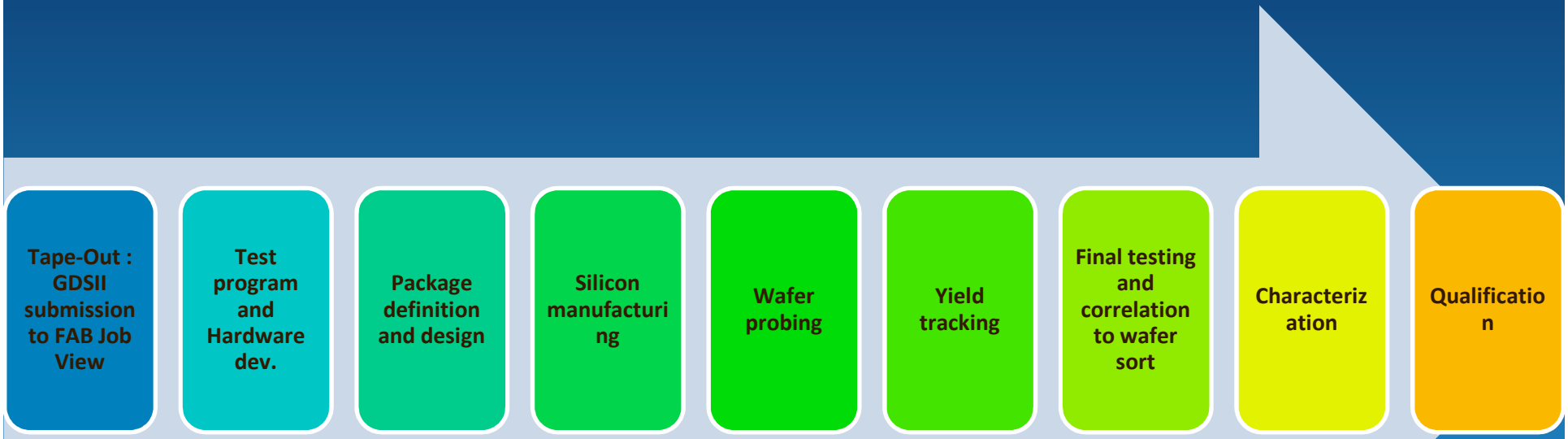
Target markets

- Wireless and Consumer Markets
- High speed communication front-end (SerDes, CDR)
- Ultra low power biomedical devices
- Full custom image sensors
- Industrial / Military control
- Custom analog blocks for our digital SoC projects
- High voltage, high current (DMOS) applications

Typical design portfolio

- A/D, D/A converters
- PLL's, SerDes and CDR's
- Step up/down charge pumps
- Power Management Units - LDO, DC2DC, POR, BG, Power Switch, etc.
- Accurate Oscillators with VT Compensation
- High Speed Line drivers
- Electro-optical device drivers
- Analog testing
- Integration of 3rd party IP's (from ChipIdea, S3, Cosmic, etc.)
- Low Jitter clocks distribution

Transfer to production and manufacturing services



Solution is custom made to best suite the customer needs

SIP / MCP solutions

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System Cost and size saving via advanced packaging options:

- Integrating several dies on single package
- Smaller footprint, less PCB routing, higher performance
- Various integration strategies:
  - Stacked die
  - Side-by-Side
  - Interposer
- 2/4/6 Layer Substrate
- Combining dies of different technologies
- SIP solutions, e.g. Controller + SDRAM + Flash + Power Management
- Combining with AAI ASIC capabilities for complete System in Package, e.g. SoC ASIC + DDR + Analog Driver

Implementation in various package options

- BGA
- QFN
- Multi-Row QFN
- Flip-Chip
- CSP

Testing and Reliability

- Advanced testing techniques to guarantee working module

Manufacturing Vendors

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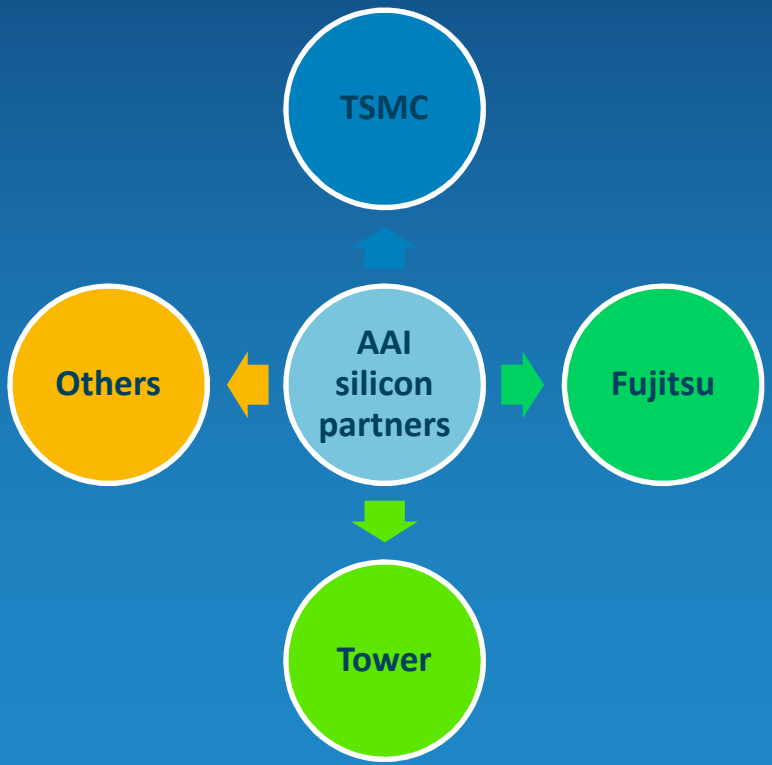
Foundries



Assembly and test

- ASE (Taiwan)
- Amkor (Korea)
- Unisem (UK / China)
- Others

CAD and IP Vendors

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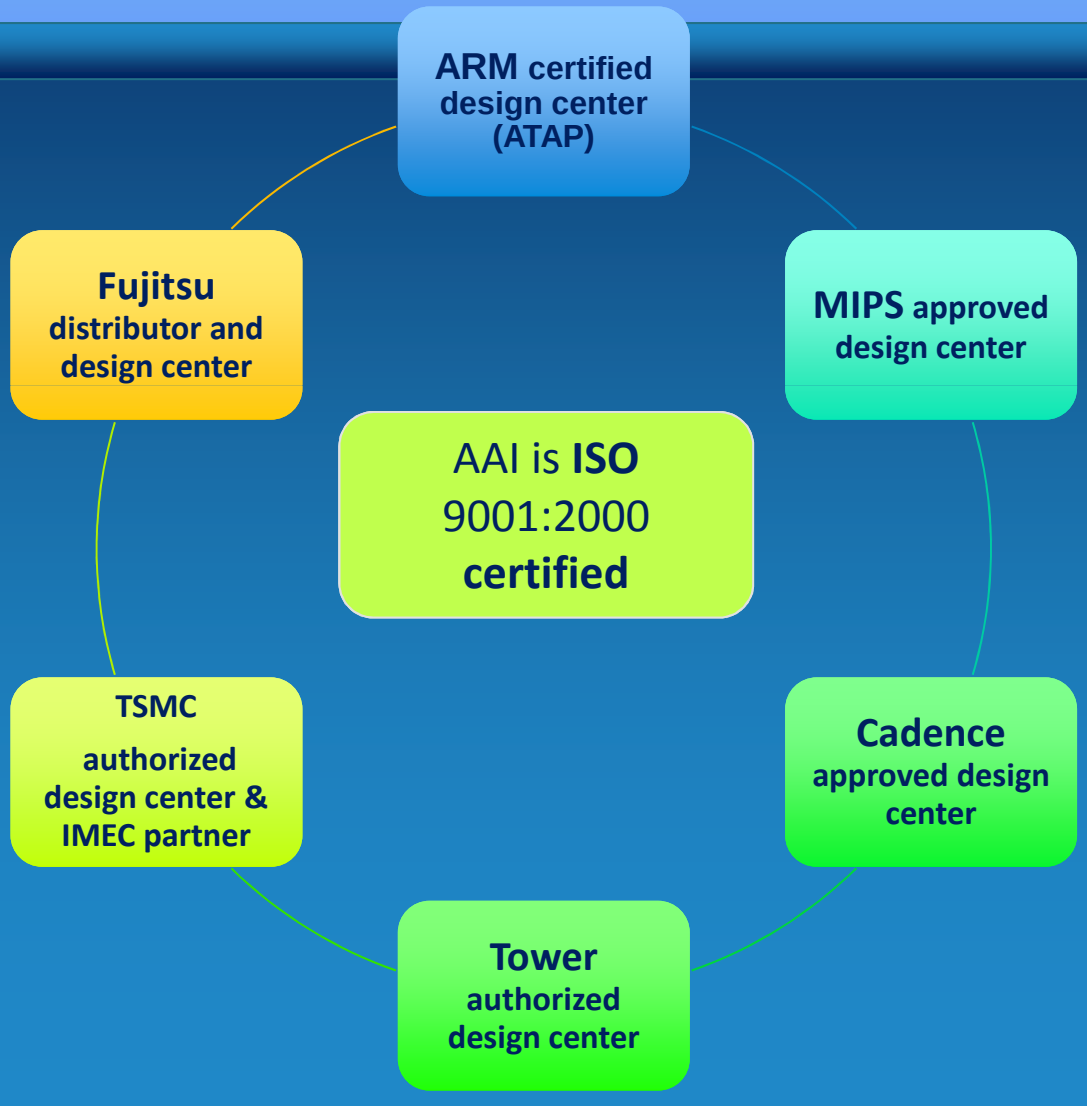
Vendor certifications



Achievments highlight

AVNET ASIC ISRAEL

- **>20 years of continuous activity in the ASIC market** as a leading vendor and Design Support Center for High-End ASIC and COT projects
- **>300 first-time-success tape-outs**, most of them complex SoC, integrating many IPs, using various vendors and in various technologies
- **Best reputation over the years** of any ASIC vendor and Design Center in Israel for quality service, on time performance and highest success rate.
- **Samsung** granted AAI team with an Appreciation Plaque for the successful design of Samsung's industry's first WiMax Base-Band chip

AAI's Nadav Ben-Ezer (r.) and Eugene Lyubinsky proudly display the Samsung appreciation plaque.

THANK YOU!