Safe Harbor Notice

Except for the historical information contained herein, the matters addressed in this presentation are forward-looking statements that involve certain risks and uncertainties that could cause actual results to differ materially, including but not limited to weather, impact of competitive products and pricing, industry-wide shifts in the supply and demand for semiconductor products, rapid technology change, semiconductor industry cycle, and general economic conditions.

Except as required by law, Andes undertake no obligation to update any forward-looking statement, whether as a result of new information, future events or otherwise.
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Company Overview

http://www.andestech.com
• Founded in March 2005 in Hsinchu Science Park, Taiwan, ROC.
• Well-established high technology IPO company
• Over 260 people; 80% are engineers.
• TSMC OIP Award “Partner of the Year” for New IP (2015)
• Founding Premier membership in the RISC-V International Association (RISC-V Foundation) (2020)
• AI Global Media Award “Most Outstanding Embedded Processor IP Supplier” (2020)
• Hsinchu Science Park Innovation Award - AndesCore™ NX27V (2020)
• EE Awards - “Taiwan-Product Award” & ”Asia-Company Award” (2021)

Andes Highlights

Andes Mission

• Innovate performance-efficient processor solution for low-power SoC

Emerging Opportunities

• Smart and Green electronic devices
• Cloud Computing and Internet of Things and Machine Learning
Business Status Overview

❖ **250+** commercial licensees
  - Geographically distributed in Taiwan, China, Korea, Japan, Europe, and USA
  - **~600** license agreements signed

❖ **AndeSight™ IDE:**
  - **22,000+** installations

❖ **Eco-system:**
  - **500+** partners

❖ **10B+** Accumulative SoC Shipped
Operation Results
2021 Revenue Analysis

YoY
+41.1%

(NT$ thousands)

<table>
<thead>
<tr>
<th></th>
<th>20 Q1-Q4</th>
<th>21 Q1-Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>581,012</td>
<td>819,778</td>
</tr>
</tbody>
</table>
2021 Top 10 Customers Analysis by Revenue

Top 10 Customer Contributed 56% Revenue

(NT$ thousands)
2021 Royalty Analysis

YoY
+47.2%

(NT$ thousands)

<table>
<thead>
<tr>
<th></th>
<th>20 Q1-Q4</th>
<th>21 Q1-Q4</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>158,792</td>
<td>233,676</td>
</tr>
</tbody>
</table>

2021 Royalty Analysis
Royalty Analysis

(NT$ thousands)

<table>
<thead>
<tr>
<th>Year</th>
<th>Royalty</th>
<th>Customer numbers</th>
</tr>
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<tbody>
<tr>
<td>2011</td>
<td>445</td>
<td>1</td>
</tr>
<tr>
<td>2012</td>
<td>660</td>
<td>2</td>
</tr>
<tr>
<td>2013</td>
<td>1,285</td>
<td>5</td>
</tr>
<tr>
<td>2014</td>
<td>10,819</td>
<td>9</td>
</tr>
<tr>
<td>2015</td>
<td>12,232</td>
<td>15</td>
</tr>
<tr>
<td>2016</td>
<td>13,320</td>
<td>15</td>
</tr>
<tr>
<td>2017</td>
<td>38,287</td>
<td>25</td>
</tr>
<tr>
<td>2018</td>
<td>74,953</td>
<td>28</td>
</tr>
<tr>
<td>2019</td>
<td>106,716</td>
<td>33</td>
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<tr>
<td>2020</td>
<td>158,792</td>
<td>41</td>
</tr>
<tr>
<td>2021</td>
<td>233,676</td>
<td>51</td>
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</tbody>
</table>
2021 Top 10 Customers Analysis by Royalty

(NT$ thousands)

Top 10 Royalty Customers Contribution Analysis: 86%
2021 Revenue Analysis by Payment Model

- License Fee: 60%
- Running Royalty: 28%
- Maintenance & Others: 9%
- Custom Computing Service: 3%
2021 Revenue Analysis by Region

- 34% Taiwan
- 34% China
- 25% USA
- 2% Japan
- 2% Europe
- 3% Korea
2021 Revenue Analysis - RISC-V

2020 Q1-Q4
- V3: 242,319 (42%)
- RISC-V: 338,693 (58%)

2021 Q1-Q4
- V3: 293,604 (36%)
- RISC-V: 526,173 (64%)

(NT$ thousands)
Historical Commercial Agreements

![Chart showing historical commercial agreements from 2006 to 2021]

<table>
<thead>
<tr>
<th>Year</th>
<th>Commercial IP Agreements</th>
<th>Commercial Accumulated IP Agreements</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2007</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2008</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>2009</td>
<td>12</td>
<td>22</td>
</tr>
<tr>
<td>2010</td>
<td>16</td>
<td>38</td>
</tr>
<tr>
<td>2011</td>
<td>16</td>
<td>54</td>
</tr>
<tr>
<td>2012</td>
<td>24</td>
<td>78</td>
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<tr>
<td>2013</td>
<td>27</td>
<td>105</td>
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<td>2014</td>
<td>27</td>
<td>132</td>
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<td>2015</td>
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<td>2016</td>
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<td>202</td>
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<td>2017</td>
<td>43</td>
<td>245</td>
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<td>2018</td>
<td>38</td>
<td>283</td>
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<tr>
<td>2019</td>
<td>46</td>
<td>331</td>
</tr>
<tr>
<td>2020</td>
<td>58</td>
<td>389</td>
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</tbody>
</table>
Historical Revenue Analysis

(NT$)

License

Royalty
2021 Consolidated Gross Margin

(NT$ thousands)

<table>
<thead>
<tr>
<th></th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Profit</td>
<td>579,829</td>
<td>818,307</td>
</tr>
<tr>
<td>Gross Margin</td>
<td>99.80%</td>
<td>99.82%</td>
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</tbody>
</table>
2021 Consolidated Operating Expenses

YoY
+21.7%

(NT$ thousands)

<table>
<thead>
<tr>
<th>Year</th>
<th>R&amp;D expenses</th>
<th>Administration expenses</th>
<th>Selling expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>110,313</td>
<td>194,810</td>
<td>237,084</td>
</tr>
<tr>
<td>2021</td>
<td>85,033</td>
<td>230,775</td>
<td>343,835</td>
</tr>
</tbody>
</table>
2021 Consolidated Operating Income

YoY +321.7 %

(NT$ thousands)

- 180,000
- 160,000
- 140,000
- 120,000
- 100,000
- 80,000
- 60,000
- 40,000
- 20,000
- 0

2020: 37,622
2021: 158,664
2021 Consolidated Operating Margin

YoY
+12.88 PT

(%)
25.00%
20.00%
15.00%
10.00%
6.48%
5.00%
19.36%
4.00%
0.00%

2020
2021
2021 Consolidated Net Income

YoY
+321.7 %

(NT$ thousands)

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>35,142</td>
</tr>
<tr>
<td>2021</td>
<td>161,665</td>
</tr>
</tbody>
</table>
2021 Consolidated Net Profit Margin

YoY
+ 13.67 PT

<table>
<thead>
<tr>
<th>Year</th>
<th>Profit Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>6.05%</td>
</tr>
<tr>
<td>2021</td>
<td>19.72%</td>
</tr>
</tbody>
</table>
2021 Consolidated EPS

YoY
+2.77 $
Andes Updates

- A 17-year-old public CPU IP company
- 3B+ Andes-Embedded SoC annually in 2021

- A founding premier member of the RISC-V International
- An active role in RISC-V International & its extension task groups
  - RISC-V Board Director
  - Member of Technical Steering Committee
  - RISC-V Ambassador
  - Chair of P-extension (Packed DSP/SIMD) Task Group
  - Co-chair of Fast Interrupt Task Group
  - Vice Chair of TEE Task Group

- A major open source maintainer/contributor
Andes Embedded in Various Applications

- In leading machine learning computers for datacenter
- In tier-one switch routers for datacenter
- Recent applications: 5G networking, WiFi 6/7, AI processors (using Andes Custom Extension, ACE)

Andes Embedded in Smart Phones

- Sensor Hub
- WiFi/ BT/ GPS/ FM (combo)
- Touch Screen Controller
- NFC Controller
- Storage Controller

Smart Speakers: WiFi IoT

Bike Sharing: GPS Ctrl

X-Trail: ADAS Ctlr

Switch: Game Flash Ctlr
V5 Adoptions: From MCU to Datacenters

- Edge to Cloud
  - ADAS
  - AIoT
  - Blockchain
  - FPGA
  - MCU
  - Multimedia
  - Security
  - Wireless (BT/WiFi)
- 40nm to 5nm
- Many in AI

- Datacenter AI accelerators
- SSD: enterprise (& consumer)
- 5G macro/small cells
New Products and Ecosystems

http://www.andestech.com
Andes RISC-V Product Overview

**AndeSoft™ Stacks**

**AndeStar™ Architecture V5**

**AndesCore™ Processors**

- Highly optimized design with leading PPA
- Handy peripheral IPs to speed up SoC construction

**AndeSight™ Tools**

- Professional IDE with high code quality
- Extensive SW stacks from bare metal, RTOS to Linux

**AndeShape™ Platforms**

**Best extensions to RISC-V**

- Andes RISC-V Product Overview
Andes V5 Architecture for All Levels of Computing

**AndeStar™ V5 CPUs**
- RV32/64
- Andes Extension

**Conventional Computing Architecture**
- Leading PPA Embedded Processor
  - IoT, Sensing, Storage, Audio, GPS

**Domain Specific Architecture (DSA)**
- Define custom instruction to handle time critical codes
- Better approach for accelerator/co-processor to do particular jobs
- Automation Tool for the generation of toolchain, ISS, partial RTL and verification

<table>
<thead>
<tr>
<th>N/D-series</th>
<th>A-series</th>
<th>Vector</th>
</tr>
</thead>
<tbody>
<tr>
<td>N22 N(X)25 D25...</td>
<td>A(X)25 A(X)27 A(X)45 Multicore...</td>
<td>NX27V NX45V...</td>
</tr>
</tbody>
</table>

**Multicore**

**High Performance and Power Efficient AP**
- 5G, AI, Datacenter, Video Surveillance, Networking

**Cray Style, Scalable Vector Processor**
- Datacenter, Server, Deep Learning
Andes RISC-V Product Roadmap

**27-Series:**
- Vector Ext. MemBoost
- NX27V
  - A27/AX27
  - A27L2/AX27L2 and more.
- 5-stage (1.1 GHz)
  - >3.53 Coremark/MHz

**45-Series:**
- Dual Issue MemBoost
- N45/NX45
  - D45
  - A45/AX45
  - A45MP/AX45MP and more.
- 8-stage (1.2 GHz)
  - >5.50 Coremark/MHz

**Benefits**
- 512-bit SIMD raises MobileNet by 66x (CNN for mobile vision)
- Boost performance by 50%
- Raise bandwidth to 3x; Cut latency by 40%

**Leading positions:**
- The first company offering commercial RVP DSP CPU
- The first company offering the most updated spec of commercial RVV Vector processor
- Tools for RISC-V custom extension expansion: ACE
AndeCore™ 45-Series

32-bit AndesCore™ N45/D45/A45/A45MP
64-bit AndesCore™ NX45/AX45/AX45MP
AndesCore™ 45-Series Overview

- 8-stage In-Order Dual-Issue
- AndeStar™ V5 ISA:
  - RV*GCN (S/D FPU): All Series
  - RV*P-ext (DSP/SIMD): D45/A(X)45
  - MMU for Linux Applications: A(X)45
- MemBoost memory subsystem
- Low power dynamic branch prediction
- Unaligned data accesses
- Fast or small multiplier
- StackSafe™ (Andes Ext.)
- CoDense™ (Andes Ext.)
- Multi-core support: A(X)45MP
  - Up to 8 cores
AX45 Can Do More (vs. 64bit A-series)

- **A53**
  - 8-stage In-Order Dual Issue
  - Widely adopted by industries in many applications

- **AX45**
  - 8-stage In-Order Dual Issue
  - Performance is better!
    - Coremark/MHz: 1.32x
    - Dhrystone/MHz: 1.37x
Target Applications for 27 & 45-Series

- AI/Deep Learning
- AR/VR
- 5G
- Networking
- Storage
- Video Surveillance
- ADAS
- V2X (Vehicle to Everything)
- IVI (In-Vehicle-Infotainment)

Metaverse and more...
Bring Andes Strength to RISC-V Cores

**Performance & Extensibility**
- Leading PPA and code size
- Rich data processing in P, V, and ACE

**Configurability**
- Flexible configurations for rich features

**Maturity**
- Compiler optimizations, and SW stacks
- Comprehensive features in AndeSight IDE
Concluding Remarks
Andes Technology

Successfully rolled out new series of RISC-V cores (w/ leading P-, V- and Custom-Ext.), custom computing service and FreeStart program to extend more oppy.

Aggressively involved in RISC-V International new technology development, contributing and leveraging RISC-V eco-system.

Becoming a technology contributor, market promoter, and sales leader in the RISC-V industry

A Trusted Computing Expert
Thank You

http://www.andestech.com
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