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.
Company Overview

http://www.andestech.com
Andes Highlights

- Founded in March 2005 in Hsinchu Science Park, Taiwan, ROC.
- Well-established high technology IPO company
- Over 400 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)
- EE Awards - “Taiwan-Product Award” & ”Asia-Company Award” (2021)
- Top 500 High-Growth Companies Asia-Pacific (2023)

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

- 300+ commercial licensees
  - Geographically distributed in Taiwan, China, Korea, Japan, Europe, and USA
  - 600+ license agreements signed

- AndeSight™ IDE:
  - 25,000+ installations

- Eco-system:
  - 500+ partners

- 12B+ Accumulative SoC Shipped
Operation Results

http://www.andestech.com
1Q23 Revenue Analysis

(NY$ thousands)

YoY +6.7%  QoQ -27.3%

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Revenue (NY$ thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22Q1</td>
<td>211,029</td>
</tr>
<tr>
<td>22Q4</td>
<td>309,517</td>
</tr>
<tr>
<td>23Q1</td>
<td>225,096</td>
</tr>
</tbody>
</table>
1Q23 Top 10 Customers Analysis by Revenue

(NT$ thousands)

Top 10 Customer Contributed 81% Revenue
1Q23 Royalty Analysis

YoY -17.9 %
QoQ -2.9 %

(NT$ thousands)

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Amount (NT$ thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22Q1</td>
<td>60,988</td>
</tr>
<tr>
<td>22Q4</td>
<td>51,613</td>
</tr>
<tr>
<td>23Q1</td>
<td>50,094</td>
</tr>
</tbody>
</table>
1Q23 Top 10 Royalty Contributors Analysis by Application

Top 10 Royalty Customers Contribution Analysis: 90%

(NT$ thousands)
1Q23 Revenue Analysis by Payment Model

- **License Fee**: 59%
- **Running Royalty**: 22%
- **Maintenance**: 18%
- **Others**: 1%

[Image of pie chart]
1Q23 Revenue Analysis by Region

- Taiwan: 60%
- USA: 22%
- China: 15%
- Korea: 3%
- Europe: 0%
- Japan: 0%
1Q23 Revenue Analysis by Product

- RISC-V: 73%
- V3: 27%
1Q23 Revenue Analysis - RISC-V

(NT$ thousands)

- 1Q22: V3 (111,644) RISC-V (99,385) Total (211,029)
- 4Q22: V3 (92,331) RISC-V (217,186) Total (309,517)
- 1Q23: V3 (59,673) RISC-V (165,423) Total (225,096)

V3: 53% RISC-V: 70% 2022
V3: 27% RISC-V: 73% 2023
Historical Revenue Analysis

Royalty

License

RISC-V 2022: 6%
1Q23 Consolidated Gross Margin

(NT$ thousands)

<table>
<thead>
<tr>
<th></th>
<th>1Q22</th>
<th>4Q22</th>
<th>1Q23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Profit</td>
<td>210,700</td>
<td>309,391</td>
<td>224,939</td>
</tr>
<tr>
<td>Gross Margin</td>
<td>99.84%</td>
<td>99.96%</td>
<td>99.93%</td>
</tr>
</tbody>
</table>
1Q23 Consolidated Operating Expenses

YoY +33.2%  QoQ -18.9%

<table>
<thead>
<tr>
<th>Quarter</th>
<th>R&amp;D expenses (NT$ thousands)</th>
<th>Administration expenses (NT$ thousands)</th>
<th>Selling expenses (NT$ thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Q22</td>
<td>117,129</td>
<td>22,599</td>
<td>67,302</td>
</tr>
<tr>
<td>4Q22</td>
<td>181,814</td>
<td>46,251</td>
<td>112,190</td>
</tr>
<tr>
<td>1Q23</td>
<td>166,661</td>
<td>46,018</td>
<td>63,107</td>
</tr>
</tbody>
</table>
1Q23 Consolidated Operating Income

YoY -1,485 %
QoQ -64.8 %

(NT$ thousands)
10,000
0
(10,000)
(20,000)
(30,000)
(40,000)
(50,000)
(60,000)

1Q22
3,670

4Q22
1Q23

(30,864)
(50,847)
1Q23 Consolidated Operating Margin

YoY
-24.33 PT

Q1 2022: 1.74%
Q1 2023: -22.59%
1Q23 Consolidated Net Income

YoY +349.8%
QoQ -59%

(NT$ thousands)

1Q22: 124,425 (NT$ thousands)
4Q22: (54,507) (NT$ thousands)
1Q23: (132,842) (NT$ thousands)
1Q23 Consolidated Net Profit Margin

YoY
-83.18 PT

58.96%  -24.22%
Q1 2022  Q1 2023
1Q23 Consolidated EPS

YoY
-3.54 $  
QoQ
+1.54 $  

(NT$)
3.00
2.00
1.00
0.00
1Q22
4Q22
1Q23
(1.00)
(2.00)
(3.00)

(2.62)
(1.08)
V5 Adoption Examples: From MCU to Datacenters

❖ **Edge to Cloud**
- ADAS
- AIoT
- Blockchain
- FPGA
- MCU
- Multimedia
- Security
- Wireless (BT/WiFi)

❖ **40nm to 3nm**

❖ **Many in AI**
- Datacenter/server AI accelerators
- SSD: enterprise (& consumer)
- 5G macro/small cells

**Cloud**
Andes RISC-V Cores Adopted in SoC

- Single core
- 2-8 cores
- > 30 cores
- > 100 cores
- > 1000 cores
New Products and Ecosystems

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

**RV32/RV64**
- Cache-Coherent 1-4 Cores
- Linux with FPU/DSP
- Fast/Compact with FPU/DSP
  - **Automotive Grade**

**Vector Ext.**
- **27-Series**:
  - Vector Ext.
  - MemBoost
  - NX27V
  - A27/AX27
  - A27L2/AX27L2
  - and more.

**5-stage (1.1 GHz)**

**45-Series**
- Dual Issue
- Vector Ext.
- MemBoost
- N45/NX45/D45
- A45/AX45
- A45MP/AX45MP
- **NX45V, AX45MPV**
  - (1024-bit VPU, 1-8 Cores)
  - and more.

**8-stage (1.2 GHz)**

**60-Series**
- > 2.5 GHz
- > 2x per-GHz performance of 45-Series
- **AX65**
  - NEW

**Out of Order**
- 13-stage

**Leading positions:**
- The 1st company offering commercial RVP DSP CPU
- The 1st company offering the most updated spec of commercial RVV vector processor
- The 1st RISC-V core certified with ISO 26262 full compliance
- Tools for RISC-V custom extension: ACE
AX45 Can Do More (vs. 64bit A-series)

**Coremark/MHz**

<table>
<thead>
<tr>
<th></th>
<th>A53</th>
<th>Andes AX45</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.18</td>
<td>5.63</td>
<td>1.35x</td>
</tr>
</tbody>
</table>

**Dhrystone/MHz**

<table>
<thead>
<tr>
<th></th>
<th>A53</th>
<th>Andes AX45</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.3</td>
<td>3.27</td>
<td>1.42x</td>
</tr>
</tbody>
</table>

- **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: 1.35x
    - Dhrystone/MHz: 1.42x
Target Applications for 25, 45, 60-Series

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

*Metaverse, HPC and more...*
The Andes AX60 Processor Series

- A new generation of AndesCore™
  - Advanced Performance 13-stage Out-of-Order Superscalar Multicore
  - Latest RISC-V Architecture
  - Supported by Andes Long-term Roadmap
    - AX65 as the first member of the AX60 series
    - More products based on the AX60 micro-architecture planned, including for automotive functional safety

- AndesCore™ AX65
  - Offering performance surpassing CA72
  - > 2.5 GHz, > 2x per-GHz performance of AX45MP
  - Engaging with early customers
AndesCore AX65: 1st Member of AX60-Series

- 64-bit, RV64GCBK
- 8-core Multiprocessor
- 13-stage OoO Pipeline
- 128-entry Reorder Buffer (ROB)
- 4-wide Frontend Decoder
- 8 Execution Pipeline engines
- 2-level Branch Target Buffer (BTB)
- TAGE-L Branch Predictor
- 1024-entry 4-way L2 TLBs
- 64 KB, 4-way Private I/D Caches
- 8 MB, 16-way Shared Cache
- 256-bit AXI4, MMIO and IOCP Buses

AX65 Multicore

- Interrupt Controller
- Debug Support
- Coherence Manager (CM)
- Shared Cache
- MMIO
- Memory
- Coherent IO

AndesCore AX65: 1st Member of AX60-Series
Andes is Driving Innovations in Automotive with Industry’s 1st RISC-V ISO 26262 Fully Compliant Core, N25F-SE
The Rise of

AndesAIRE™ AnDLA™ I350
The First Generation of Andes Deep Learning Accelerator

AndesAIRE™ NN SDK
Unleash the maximum AI/ML performance and synergy of RISC-V CPU and AnDLA™
Andes AI Total Solutions

AndesSight™ IDE
- GCC/LLVM Toolchains
- Build, debug, deploy, profile
- Analysis and tuning
- RTOS & Linux
- Device drivers
- Sample codes
- Simulator
- Documentation

AndesAIRE™ NN SDK
- AndesAIRE™ NN Pilot™
  - Generated C code template
- NN inference engines
  - TensorFlow
  - TensorFlow Lite
  - tvm
- AndesAIRE™ NN Library
- AndeSoft™ Vector / DSP Library
- AnDLA™ driver

Linux Host Processor
AX45MP(V), AX65

Compute Acceleration
- Vector: 27V, 45V
- DSP/SIMD: D25F, D45

Accelerator
AnDLA™ I350

Bus

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Taking RISC-V® Mainstream
AndesAIRE™ - Andes AI Runs Everywhere

Smart Camera

Smart Sensor

Smart Home Appliance

AIoT / tinyML

Robotics

Wearable

Taking RISC-V® Mainstream
Thank You

http://www.andestech.com
+886-3-5726533
N25F-SE Industry First ISO 26262 Full Compliance RISC-V Processor

- ISO 26262 Certification for Development Process: ASIL-D
  - In Dec. 2020, Andes certified by SGS-TÜV Saar GmbH
- ISO-9001 QMS achieved and maintained since 2010
- ISO 26262 Edition 2018 ASIL B Compliant Certification for N25F-SE
  - ISO 26262-2,4,5,8,9
  - Covers all the sections applicable to CPU core
AndesAIRE™ AnDLA™ I350

- **Andes Deep Learning Accelerator (AnDLA™)**
  - High performance-efficient deep learning accelerator for edge and end-point inference
  - Scalable and multi-DLA
  - Cooperate with AndesCore™ full series (22/23/25/27/45/65)

- **Accelerating for most of NN Applications**
  - Image and video
  - Speech/voice and audio

- **Target performance**
  - Configurable MACs: 32 to 4096 (INT8)
  - Performance: 64 GOPS to 8 TOPS (INT8 @1GHz)
  - Configurable local memory: 16KB to 4MB
  - Leading power efficiency >5 TOPS/W (@28nm)

- Integrated DMA and local memory