Chroma
Turnkey Test & Automation Solution Provider

Company Profile
2013
Founded in 1984, Chroma ATE Inc. is a world leading supplier of precision Test and Measurement Instrumentation, Automated Test Systems, Manufacturing Execution Systems and Turnkey Test and Automation Solutions marketed globally under the brand name "Chroma".

Significant markets Chroma serves include LED, photovoltaic, Li-battery, electric vehicle (EV/EVSE), semiconductor/IC, laser diode, flat panel display, video and color, power electronics, passive component, electrical safety, and thermoelectric test, as well as automated optical inspection and manufacturing execution systems.

Chroma's vision is to develop globally leading products as a world-class enterprise. To achieve this, Chroma devotes a significant amount of investment and resources in research and development in order to produce exceptional products of precision, reliability and valuable unique test solutions for technology industries.

To sustain as a world-class enterprise, Chroma nurtures its brand as one of innovation, continuous improvement, and globalization ensuring its leading technology and integration capabilities in optics, mechanics, electronics, thermal control and software provide competitive advantages and future growth for the company.

Chroma has branch offices in Europe, the United States, Japan and mainland China chartered to deliver innovative technologies with high value-added service to satisfy our global customers' demands.
## At a Glance

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Founded</td>
<td>Nov., 1984</td>
</tr>
<tr>
<td>Paid-in Capital</td>
<td>NT$ 3.77 Billion / US$ 125.7 Million</td>
</tr>
<tr>
<td>IPO</td>
<td>Dec., 1996 (TAIEX : 2360)</td>
</tr>
<tr>
<td>Chairman &amp; CEO</td>
<td>Leo Huang 黃欽明</td>
</tr>
<tr>
<td>Employees</td>
<td>Global 全球 1,639/ Taiwan 台灣 1,245 (as of Jan. 2013)</td>
</tr>
<tr>
<td>Revenue</td>
<td>NT$ 4.17 Billion / US$ 141.5 Million (2012, NT$ : US$ = 29.5 : 1)</td>
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<tr>
<td></td>
<td>NT$ 11.75 Billion / US$ 398.3 Million (2012 Consolidated 合併營收)</td>
</tr>
<tr>
<td>Headquarters</td>
<td>Taoyuan, Taiwan 台灣桃園</td>
</tr>
<tr>
<td>Products</td>
<td>Test &amp; Measurement Instruments 精密電子量測儀器</td>
</tr>
<tr>
<td></td>
<td>Automated Test Systems 自動測試系統</td>
</tr>
<tr>
<td></td>
<td>Manufacturing Execution Systems 製造資訊系統</td>
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<tr>
<td></td>
<td>Turnkey Test &amp; Automation Solutions 整合式量測與自動化解決方案</td>
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</tbody>
</table>

## Honor

Chroma ATE Inc. granted 1st Taiwan Mittelstand Award from the Ministry of Economic Affairs in 2013.

This award is officially bestowed upon Chroma ATE Inc. in recognition of its unique, key expertise and remarkable global competitiveness. Chroma’s outstanding performance is acknowledged as a benchmark to all enterprises.
Corporate Highlights

1993
- Chroma ATE Inc. (U.S.A.) established
- Granted ISO 9002

1994
- Chinese National Laboratory Accreditation established
- Initial Public Offering in Taiwan
- Granted ISO 9001

1995
- Granted Industrial Technology Development Award from the Ministry of Economic Affairs
- Chroma Electronics (Shenzhen) Co., Ltd. established

1996
- Taoyuan factory grand opening
- Acquired Zentech Technology Inc.

1997
- Chroma Systems Solutions, Inc. (CSS) established
- Hsinchu Science Park branch established

1998
- 20th anniversary and Taoyuan new headquarters grand opening
- Advanced Technology Research Center established
- Acquired Raster Opto-Mechatronics Co., Ltd.

1999
- Mechatronics System Center established
- Spun off Special Material Business Unit and formed a new subsidiary Chroma New Material Corp.
- China Suzhou factory grand opening

2000
- Acquired MAS Automation Corp.
- New subsidiary Testar Electronics Corp. established

2001
- Acquired Sajet Technology Co., Ltd. and formed MES Business Unit
- Chroma Japan Corp. established

2002
- Granted Year 2008, ISO 9001
- Acquired Raster Opto-Mechatronics Co., Ltd.

2003
- Kaohsiung factory new site expansion
- Granted ISO/TS 16949 Automotive Certification

2004
- Acquired Wise Life Technology Co., Ltd.
- Chroma Systems Solutions, Inc. acquired QuadTech Inc.

2005
- Granted 1st Taiwan Mittelstand Award from the Ministry of Economic Affairs

2006
- 20th anniversary and Taoyuan new headquarters grand opening
- 20th anniversary and Taoyuan new headquarters grand opening

2007
- Acquired Raster Opto-Mechatronics Co., Ltd.

2008
- Kaohsiung factory new site expansion
- Granted ISO/TS 16949 Automotive Certification

2009
- Acquired Wise Life Technology Co., Ltd.

2010
- Chroma Systems Solutions, Inc. acquired QuadTech Inc.

2011
- Acquired Raster Opto-Mechatronics Co., Ltd.

2012
- Acquired Wise Life Technology Co., Ltd.

2013
- Chroma Systems Solutions, Inc. acquired QuadTech Inc.

2014
- Acquired Raster Opto-Mechatronics Co., Ltd.
**Organization**

Chairman & CEO  董事長 & 總經理

Executive VP  執行副總
Consultants  顧問
Chief Technology Officers  技術總監

Executive VP  執行副總
Consultants  顧問
Chief Technology Officers  技術總監

CEO Office  總經理室

- Operation Management Center  營運管理中心
- Corporate Marketing Department  市場企劃部
- Internal Auditor  積審室
- Legal Affairs Department  法務部
- Environmental Safety & Health Center  環安中心

Finance & Administration Center  行政管理中心

Manufacturing Center  聯合製造中心

Advanced Technology Research Center  創新技術研發中心

Test & Measurement Instruments BU  量測儀器事業部

Semiconductor Test Equipment BU  半導體測試設備事業部

Integrated System Solution BU  整合系統事業部

Manufacturing Execution System BU  製造資訊系統事業部

**Corporate Commitment**

積極發展世界級產品，致力成為世界級企業
Developing Global Leading Products & Becoming World-Class Enterprise

- Precision 精準
- Reliability 可靠
- Uniqueness 獨特
- "Chroma" Brand 自有品牌
- Innovative Technology 創新技術
- Globalization 全球化

Be Initiative, Accountable & Innovative for Superior Technology, Quality & Service

Caring, Sharing, Responsible, Teamwork & Striving for Excellence

品質第一是責任，客戶滿意是榮譽
Customer Satisfaction with Quality First

以主動、負責、創新的精神
追求更好的技術、品質、服務

Working on Better Solutions

致力創新，追求卓越

Vision

Mission

Value

Culture

Innovation

Speed

Lean Operation
Chroma Group

Global Operation Sites

Taiwan
- Kueishan Hwa-Ya Technology Park, Taoyuan
- Hsinchu Science Park, Nanzi, Kaohsiung

China
- Shenzhen
- Suzhou
- Shanghai
- Beijing

USA
- Irvine, CA
- Foothill Ranch, CA

Europe
- Ede, Netherlands
Financial Overview

Sales Distribution 產品銷售分佈
Year: 2012

- T&M Instruments 精密電子量測儀器 (46.1%)
- Automated Test Systems 自動測試系統 (47.6%)
- Others 其他 (6.3%)

Net Income 稅後盈利

<table>
<thead>
<tr>
<th>Year</th>
<th>NT$Million</th>
<th>EPS (NT$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>1,105</td>
<td>3.38</td>
</tr>
<tr>
<td>2009</td>
<td>862.9</td>
<td>2.50</td>
</tr>
<tr>
<td>2010</td>
<td>1,811.6</td>
<td>3.86</td>
</tr>
<tr>
<td>2011</td>
<td>4,174</td>
<td>11.75</td>
</tr>
<tr>
<td>2012</td>
<td>4,174</td>
<td>11.75</td>
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</table>

R&D Employees 研發人員

<table>
<thead>
<tr>
<th>Year</th>
<th>NT$Million</th>
<th>US$ Million</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>417</td>
<td>1,293</td>
</tr>
<tr>
<td>2009</td>
<td>406</td>
<td>1,245</td>
</tr>
<tr>
<td>2010</td>
<td>419</td>
<td>1,211</td>
</tr>
<tr>
<td>2011</td>
<td>505</td>
<td>1,293</td>
</tr>
<tr>
<td>2012</td>
<td>462</td>
<td>1,245</td>
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</tbody>
</table>

Note: US$ : NT$ = 1 : 29.5 for 2012
Turnkey Test & Automation Solutions

Automation Integration
自動化整合

Test & Measurement Technology
電子量測技術

Manufacturing Execution System
製造資訊系統

Assembly & Test Automation

- Loading
- Assembly
- AOI
- Safety Test
- Power Electronics Test
- TEC Test & Control
- Aging
- Final Test
- Sorting
- Unloading

MES

Manufacturing Execution System
- Computer Integrated Manufacturing
- Equipment Management System
- Statistics Process Control System
Flat Panel Display/Video & Color Test Solutions

PRODUCTS
- OLED Lifetime Test System
- OLED Display Shorting Bar Pattern Generator
- Touch Panel Defect Inspection System
- Multi-Functional Optical Profiling System
- Flat Panel Display Aging Chamber
- LCM Tester
- LCM ATS
- LCM Pattern Generator Card
- HDMI Distributor
- SDI Module
- Pattern Analyzer
- Video Pattern Generator
- Display Color Analyzer
- Spectrocolorimeter
- Display Multi-probe ATS
- Front Projector ATS
Power Electronics Test Solutions

PRODUCTS
☑ Digital Power Meter
☑ Power Analyzer
☑ AC/DC Power Source
☑ AC/DC Electronic Load
☑ Adapter/Charger ATS
☑ PC Power Supply ATS
☑ LED Power Driver ATS
☑ Switching Power Supply ATS
☑ LCD Inverter ATS
☑ PV Inverter ATS
Electrical Safety/Passive Component Test Solutions

PRODUCTS
- Hipot Tester
- Ground Bond Tester
- Electrical Safety Test Scanner
- Wound Component EST Analyzer
- Electrical Safety Analyzer
- High Capacitance Electrolytic Capacitor ATS
- Electrical Equipment ATS
- Medical Electrical Safety ATS
- Automatic Transformer Tester
- LCR Meter
- Component Test Scanner
- Electrolytic Capacitance Analyzer
- Programmable HF AC Tester
- Milliohm Tester
- Magnetic Component Test System
- Bias Current Test System
- Component ATS
- Electrical Double Layer Capacitor ATS
- EDLC LC Monitoring System
Semiconductor/IC Test Solutions

PRODUCTS
✓ Programmable Pin Electronics Module
✓ Four Quadrant Programmable Power Supply
✓ VLSI Test System
✓ SoC/Analog Test System
✓ Automatic System Function Tester
✓ Miniature IC Handler
✓ Tri-temp Hybrid Single Site Test Handler
✓ Tri-temp Final Test Handler
✓ CMOS Image Sensor Inspection System
LED & Lighting/Laser Diode Test Solutions

PRODUCTS
☑ ESD Test System
☑ LED Electrical Test Module
☑ LED Flip Chip Total Power Test System
☑ Wafer Inspection System
☑ LED Light Bar Test System
☑ LED Light Bar Electrical Test System
☑ LED Burn-in Test System
☑ LED Lighting Test System (For Laboratory)
☑ LED Lighting In-line Test System (For Mass Production)
☑ LED Load Simulator
☑ LED Power Driver ATS
☑ Laser Diode Burn-In Test System
☑ Laser Diode Characterization System
☑ VCSEL Tester

Global's first LED Bulb Automatic Assembly and Test Line
Photovoltaic Test Solutions

**PRODUCTS**

- Solar Wafer Inspection System
- Solar Wafer/Cell Diffusion Loader/Unloader Equipment
- Automatic Optical Solar Wafer/Cell Inspection System
- c-Si Solar Cell Tester
- Solar Cell/Module I-V Tester
- Automatic Solar Cell Inspection Test/Sorting System
- Solar Array Simulator
- PV Inverter ATS
Electric Vehicle Test Solutions

PRODUCTS
☑ Electrical Safety Analyzer
☑ Battery Pack ATS
☑ On-board Charger/DC-DC Converter ATS
☑ Hybrid Control Unit/DC-DC Converter ATS
☑ Charger Station (EVSE) ATS

Worldwide first certification of SAE J1772 communication protocol charging station automatic test system (ATS)
**Battery Test Solutions**

**PRODUCTS**
- Recycling Li-ion Cell Formation System
- Battery Cell OCV & ACR Test Equipment
- Battery Cell Barcode Binding Equipment
- Battery Cell Rework Sorter
- Battery Cell Charge/Discharge Test System
- Battery Cell Reliability Test System
- Battery Cell Grouping Equipment
- Regenerative Battery Pack Test System
Thermoelectric Control & Test Solutions

PRODUCTS
- TEC Controller & Platforms
  - Solar Cell Platform
  - LED Integrated Sphere Platform
  - Wafer Chuck
  - E-paper Platform
  - Micro Projector Platform
- Multi-function Thermal Data Logger
- Thermal Profiler
- Heat Pipe ATS