

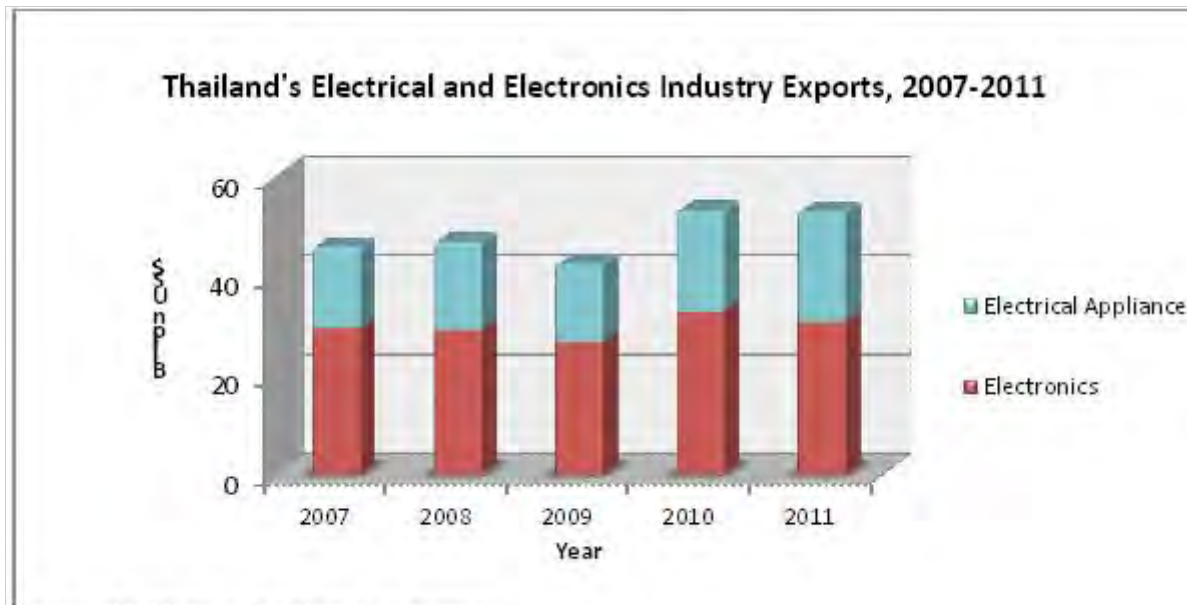
## Electrical&Electronics

### Thailand: World's electrical and electronics industry investment destination

July 2012

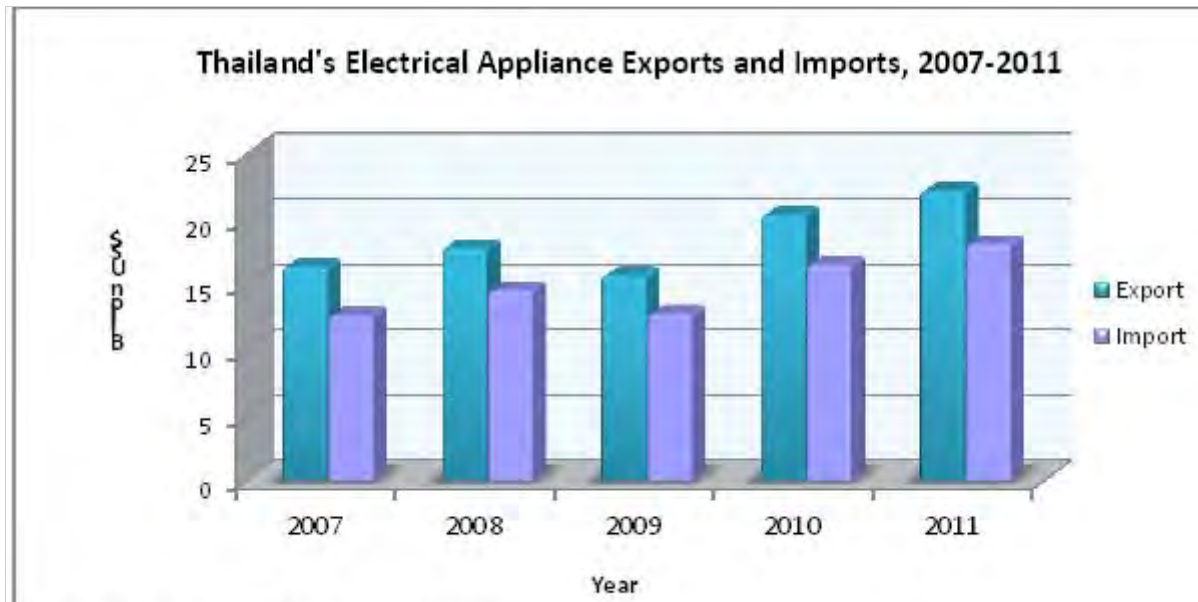
Constituting a nearly US\$60 billion industry, electrical appliance and electronics businesses in Thailand continue to expand. Throughout the years, the electrical and electronics industry has not only played an important role in the nation's economy as a major export earner but has also positioned Thailand as the leader in Southeast Asia. Recognizing the sustainable development of this sector as a priority for the Kingdom, the Thai government has launched generous investment policies and measures for investors.

In 2011, the electrical and electronics industry contributed almost 24% of Thailand's annual export revenues, generating US\$55 billion worth. Major export destinations were ASEAN (17%), the EU (14%), mainland China (14%), the United States (13%), Hong Kong (12%) and Japan (11%).



### ELECTRICAL APPLIANCES SECTOR

Thailand is ASEAN's largest production base in the electrical appliances sector, and is the world's 2<sup>nd</sup> biggest producer of air-conditioning units and the 4<sup>th</sup> largest for refrigerators. In 2011, the country's electrical appliance exports were valued at US\$22.1 billion, 9% higher than the previous year. Imports in this vibrant sector also increased, by 10% to a total of US\$18 billion.



Source: Thai Electrical and Electronics Institute.

Thailand's robust manufacturing base and well-developed infrastructure, including efficient road and port systems, make the country an ideal place for electrical and electronics operations. Almost all of the world's major electrical appliance manufacturers are located in Thailand. With over 800 electrical appliance factories, Thailand has attracted renowned companies from across the globe. Japanese manufacturers constitute half of the local sector. JVC, Sony, Orion, Nikon, Pioneer, Panasonic, Canon, Sharp, Hitachi, Mitsubishi, Toshiba, TDK, NEC, Stanley, Rohm, Alps Electric, Epson, Alpine, Minebea, NHK, Seiko, Sanyo and Fujitsu are among these. Additional prominent international investors include Tatung and Acer from Taiwan; LG and Samsung from South Korea; Western Digital, Seagate, Hutchinson, Honeywell, Carrier, Emerson and Spansion from the United States; and Europe's Electrolux, Philips, Stiebel Eltron, Schneider, BHS, ABB and Fasco.

Based on export values in 2011, Thailand's major electrical appliance products are air conditioners, refrigerators, digital cameras and video camera recorders. Air conditioners, which account for 15% of the sector, have the highest export value.

The major export destinations for Thailand's electrical appliances in 2011 were ASEAN (19%), Japan (14%), the EU (13%), the United States (11%), mainland China (6%) and Hong Kong (5%). ASEAN was the largest market with orders worth US\$4.3 billion, followed by exports to Japan at US\$3.2 billion.

## ELECTRONICS SECTOR

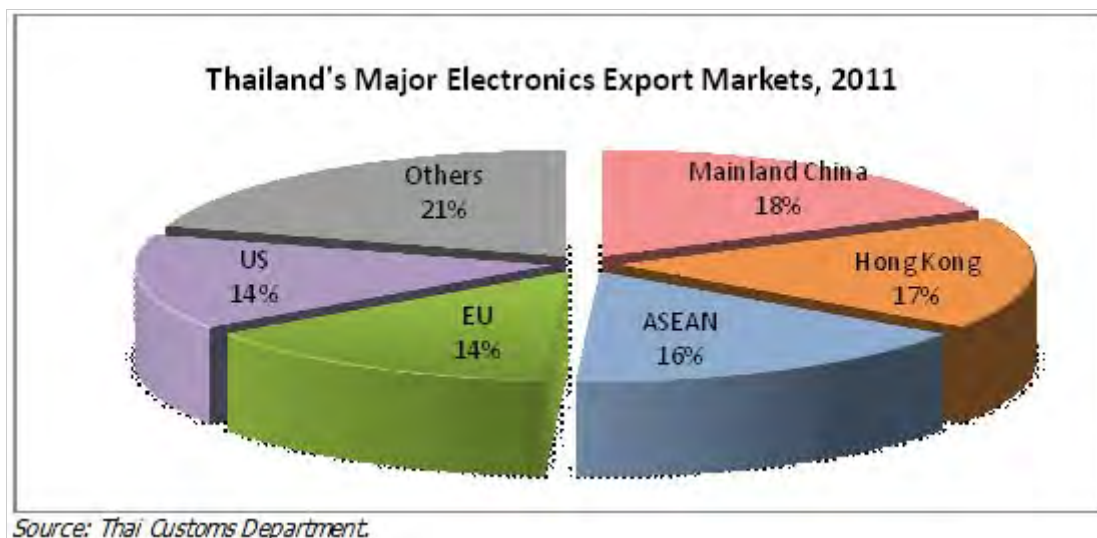
Electronics is also one of Thailand's most prominent manufacturing sectors. In 2011, the country's overall trade in electronics products was worth approximately US\$56 billion. Export revenues hit nearly US\$31 billion.

In 2011, Thailand's main electronics exports were hard disk drives (HDDs) and integrated circuits (ICs), which accounted for approximately 34% and 26% of total outbound shipments, respectively. Thailand is the No. 1 HDD and components manufacturing base, commanding a 40%-45% share of worldwide HDD production. All of the major HDD producers – Western Digital, Seagate, Hitachi GST and Toshiba – have production bases in the country.

Considering the increase in global demand for high-technology consumer electronics, including computers, flat panel displays, tablets, gaming consoles and wireless devices, Thailand remains the top investment destination for the sector.

Thailand's roster of manufacturers features numerous world-class companies, including Fujitsu from Japan, LG Electronics of Korea and Philips Electronics from the Netherlands, as well as Western Digital and Seagate of the United States. These companies have established facilities for a diverse scope of purposes, from production and assembly to testing and R&D.

Parallel to the rocketing demand for computers and mobile phones, the total value of Thailand's exported electronics amounted to approximately US\$31 billion in 2011.



As a result of the industry's sustained growth, an increase in electronics imports to approximately US\$25 billion in 2011 was also observed.

#### **Hard Disk Drives**

The HDD sector has long held huge significance for the country, as Thailand has supplied nearly half of the world's HDDs since 2005. In 2011, Thailand's total computer component exports (including HDDs) were valued at US\$17 billion. The country's HDD exports alone totaled US\$10 billion that year, representing 62% of total computer component exports. The competitiveness of Thailand's HDD sector stems from a deep network of supporting industries that manufacture most of the parts and subcomponents utilized in the assembly of final HDDs. Concentrated in the country's central and northeastern regions near Bangkok, Thailand's HDD cluster development program gives companies the ideal combination of efficiency, cost-savings and readily available expertise.

*"Data creation is expected to grow by 44 times in the next decade, but storage capacity for that will increase by about 30 times. Thus, this gap adds up to a very significant demand for digital storage."*

- John Coyne, President and CEO of Western Digital Corporation, February 2012 -

#### **Integrated Circuits**

ICs represent Thailand's largest electronics import category and its second-largest such export. The major markets are Hong Kong, Singapore, Japan and mainland China. Considering the rising demand for electrical apparatuses and electronics of all types, the IC sector will certainly prosper. It offers excellent business opportunities for investors, as there currently exists a trade deficit in the sector. According to Thai Electrical and Electronics Institute, the value of ICs imported into Thailand over the last decade is greater than that of any other electronics import. In 2011 alone, the country imported US\$10 billion worth of ICs.

### Key Players in the IC Cluster in Thailand

<b>IC Design:</b> <ul style="list-style-type: none"><li>• Rohm LSI</li><li>• Silicon Craft Technology</li></ul>	<b>Assembly:</b> <ul style="list-style-type: none"><li>• Circuit Electronics</li><li>• Hana Semiconductor</li><li>• Microchip</li><li>• NXP</li><li>• Spansion</li><li>• Millennium Microtech</li><li>• Oki</li><li>• Rohm Integrated System</li><li>• Sanyo Semiconductor</li><li>• Sony Device Technology</li><li>• Stars Microelectronics</li><li>• Stats ChipPAC</li><li>• Thai NJR</li><li>• Toshiba Semiconductor</li><li>• UTAC Thai</li><li>• Vigilant Technology</li></ul>
<b>Lead Frame:</b> <ul style="list-style-type: none"><li>• Rohm Mechatech</li><li>• SumikoLeadFrame</li></ul>	
<b>Testing:</b> <ul style="list-style-type: none"><li>• Microchip</li><li>• Maxim Integrated</li></ul>	

Thailand continues to prove itself an extremely attractive location for the assembly and testing of HDDs, ICs, and electronic subcomponents such as printed circuit boards. Although the sector is well-developed, there remain areas with high market potential that manufacturers considering to expand can explore. For example, many key components of the upstream electronics value chain, including semiconductor devices, ICs, and discrete components such as diodes and transistors, are still imported, primarily from Korea, Japan, Taiwan and Singapore. Investors can capture this market and generate profits.

In addition, IC design and related activities offer a burgeoning field of opportunity, particularly in wafer design, where there is currently little or no domestic production. The government extends generous support to relevant organizations and institutes by organizing human resource development training programs and conducting research on their behalf.

#### Automotive Electronics

With the ubiquitous presence of automobiles and car owners' ongoing quest for sophisticated gadgets and electronic applications in vehicles, the automotive electronics sector represents a market brimming with potential and opportunities. The global market for automotive electronics is projected to reach US\$243.7 billion by 2015. Strong volume growth is seen especially for side-impact airbags, in-car entertainment, and driver-assistance systems such as collision avoidance, night vision and lane departure warning.

After capturing a spot among the world's top 15 automobile manufacturing countries, Thailand is now striving to enter the top 10 by 2015. This is a driving force behind the development of all relevant supporting industries, including automotive electronics and parts.

#### WHY THAILAND?

Thailand offers a number of unique advantages for electrical appliance and electronics producers. These include:

**Competitive workforce:** Currently, over 400,000 people are employed in Thailand's electrical and electronics industry. Indeed, the well-qualified but affordable workforce is a considerable attraction for many investors. Advancing the competitiveness and technical capabilities of the workforce continues to be a focus of the government.

**Access to markets:** The free trade agreements between Thailand and countries such as Australia, New Zealand, India, Japan and members of the Association of Southeast Asian Nations (ASEAN) give Thailand, and its investors, a considerable advantage in reaching out to the different markets. The establishment of the ASEAN Economic Community (AEC) in 2015 will further enhance Thailand's attractiveness, with the AEC serving as a massive single

market of 600 million consumers. The AEC will open new doors to manufacturers by transforming ASEAN into a region with the free movement of goods, capital, services, investment and workforce.

*"Thailand is a good operating base for us due to being the center of the Indochinese peninsula. Here we have quick access to export markets in surrounding countries."*

-Mr. Hirotaka Murakami, CEO of the Panasonic Group of Companies in Thailand-

**Excellent logistic systems:** Thailand boasts a world-class infrastructure, including state-of-the-art seaports, airports and communication facilities. Suvarnabhumi International Airport and Laem Chabang Deep Sea Port in particular offer manufacturers the transportation foundation they need for their export operations. Thailand is a hub of transportation in the Southeast Asia region, being the perfect route through the east-west and north-south corridors that can distribute products to nearby countries such as Laos, Cambodia, Vietnam, Myanmar, Malaysia and Singapore, and also to southern China.

**Network of supporting organizations:**

The government and organizations supporting the growth and competitiveness of the electrical and electronics industry in Thailand include the Electrical and Electronics Institute, Hard Disk Drive Program, National Electronics and Computer Technology Center, and research centers such as Thailand Science Park.

**BOI Investment Incentives:** The Thailand Board of Investment (BOI) offers a wide range of fiscal and non-tax incentives for investors. Tax-based incentives include exemption or reduction of import duties on machinery and raw materials, and corporate income tax exemption and reduction. Non-tax incentives include permission to bring in foreign workers, own land and take or remit foreign currency abroad.

**For further information**

Thailand Board of Investment: [www.boi.go.th](http://www.boi.go.th)

ASEAN Supporting Industry Database: [www.asidnet.org](http://www.asidnet.org)

Electrical and Electronics Institute: [www.thaieei.com](http://www.thaieei.com)

National Electronics and Computer Technology Center: [www.nectec.or.th](http://www.nectec.or.th)

Electronic & Computer Employers' Association: [www.eceathailand.com](http://www.eceathailand.com)

**Updated:** September 2012