

LABOR MARKET INTELLIGENCE REPORT
**ELECTRONICS
INDUSTRY**



THE ELECTRONICS INDUSTRY

I. The Philippine Electronics Industry

The Philippine Development Plan (PDP) 2011-2016 has identified the Electronic industry as one of the ten (10) priority sectors. It has been around for four (4) decades, beginning in the 1970's and has contributed immensely in terms of investments, exports, employment, technology and knowledge transfer. The Philippine electronics industry is still the biggest contributor to the total Philippine exports. It has contributed significantly to the rapid export growth ending 2012 with a 43% share, equivalent to US\$23 billion. Total imports of the Philippine Electronics industry last 2012 is US\$16billion.

The Philippine Electronics industry covers the following sub-sectors:¹

- *Semiconductors and Other Components*
This is the biggest sub-sector of the electronics industry consisting of companies manufacturing integrated circuits (ICs), transistors, diodes, resistors, capacitors, coils, transformers, PCBs and other components. Major players in this sub-sector are the subsidiaries of some of the world's biggest semiconductor companies such as Texas Instruments, Philips, Amkor, Fairchild Semiconductor, etc.
- *Electronic Data Processing (EDP) Equipment*
This sub-sector consists of companies engaged in the manufacture of computers, peripheral storage and input/output devices. Among the finished products are laptops, desktop PCs, printers, computer monitors, drives: hard disk, optical, ZIP and CD-ROM. The Philippines proudly supplies fifty percent (50%) of the world demand for 2.5" HDD and ten percent (10%) of world demand for 3.5" HDD.
- *Office Equipment*
This sub-sector includes companies, which are into production of photocopiers, fax machines and electronic calculators
- *Telecommunications Equipment*
Included in this sub-sector are companies producing telephone sets, modems, copper communication cables and fiber optic cables.
- *Communications and Radar*
Companies in this sub-sector comprised mainly of manufacturers of cellular phones, pagers, closed circuit television (CCTV), CB transceivers, radar detectors, marine and land mobile radios.
- *Control and Instrumentation*
This sub-sector refers to test and measuring instruments such as oscilloscopes, signal generators, ammeters, voltmeters, ohmmeters, cross talk meters, etc. Philippine-based companies in this sub-sector consist of manufacturers of PCB assemblies for instrumentation/testing equipment, digital thermometers, microscope, automotive test equipment and multi-testers.

¹ The Philippine Electronics Industry Profile prepared by the Board of Investments. 23 February 2011.

- *Medical and Industrial*
This sub-sector covers equipment used for X-ray and other medical applications, railway signaling, security and fire alarms. Philippine-based companies are involved in the production of spiro analyzers and smoke detectors.
- *Automotive Electronics*
Companies in this sub-sector comprised mainly of manufacturers of car stereos, Anti-Skid Brake Systems (ABS), and Car Body Electronics (CBE).
- *Consumer Electronics*
Consumer electronics manufacturing in the country primarily consists of TV sets, VCD players, electronic games, radio cassette players and karaoke machines.
- *Solar/ Photovoltaic*
This emerging subsector of the electronics industry consist of devices that make use of solar cells in producing electricity for practical use. The presence of big international companies such as SunPower Manufacturing Ltd. (SPML) and Solaria Corporation helps in positioning the Philippines as a solar manufacturing hub in Asia.

II. The Philippine Semiconductor and Electronics Industry Roadmap

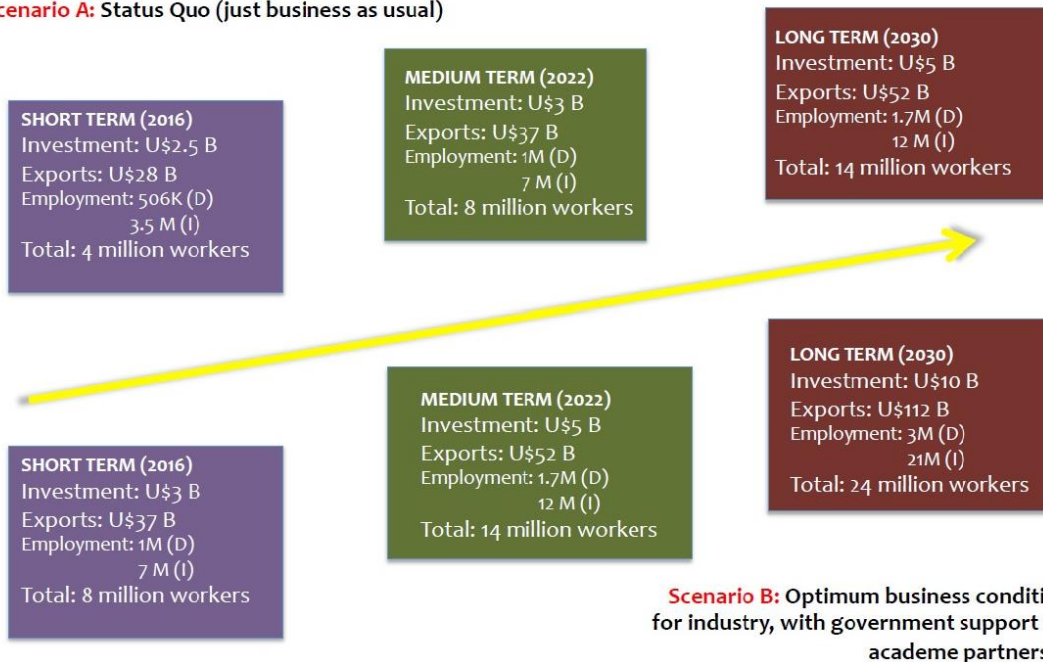
The Philippine Semiconductor and Electronics Industry Roadmap was crafted by the Semiconductor and Electronics Industry of the Philippines, Inc. (SEIPI) with support from the Board of Investment -Department of Trade and Industry (BOI-DTI). Currently, SEIPI is the largest semiconductor and electronics industry association in the country with a total membership of 252 foreign and Filipino companies.

The Roadmap has identified key targets in terms of investment, exports and employment that the industry hopes to achieve in the short, medium and long term which is by 2030. The industry targets a 500,000 direct employment by 2016, on a business as usual scenario. However, it is also aiming a one million (1M) direct employment in the same year on a scenario of optimum business conditions for industry and with support from the government and the academe. An optimum business conditions for the industry and government/academe support by 2030 would result to three million (3M) direct and 21 million indirect employment, US\$10 billion in revenue and US\$112 billion in exports. Please refer to figure 1.

Figure 1: Industry Targets

WHERE THE INDUSTRY IS GOING: INDUSTRY TARGETS

Scenario A: Status Quo (just business as usual)



Source: SEIPI

Moreover, in order to achieve its targets the Roadmap has identified strategic activities. It has established the DoSEMI (Drive-up our Semiconductor & Electronics Manufacturing Index) framework for companies to build and strengthen the strategies identified to meet the targets of the roadmap. DoSEMI is based on five key strategies:

1. Identify customers' needs
2. Understand suppliers' baseline
3. Develop the capabilities of the following:
 - SME Partnership
 - Technology
 - Product Groups (Automotive, Medical, Consumer Products)
 - R&D (SMS/EMS Manufacturing, Renewable Energy, Failure Analysis)
 - Training
 - Investments
4. Match Supply and Demand; and
5. Periodic assessment

Likewise, the roadmap also calls for a stronger public-private partnership with the industry as driver and the government as enabler. It has also identified the support needed from TESDA specifically in terms of scholarship support and development of training regulations for different types of operators and technicians.

III. Employment and Skills Demand

SEIPI has projected that the number of persons employed in the electronics industry is at 62,000 direct jobs which will be generated annually beginning 2012 to 2016.

Figure 2 shows the five (5) year employment forecast, while, figure 3 shows the number of skilled workers needed by the industry for 2014-2016. Accordingly, the growth is attributed to the expansion of electronics, and production ramp up of startup companies. Moreover, seven (7) companies have indicated their willingness to invest in the country on top of two giant electronics companies making inquiries.

Figure 2. Projected Number of Direct Jobs of the Electronics Industry 2012-2016

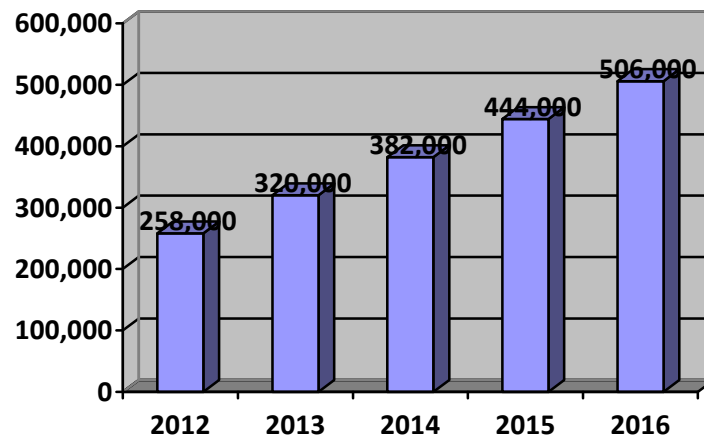
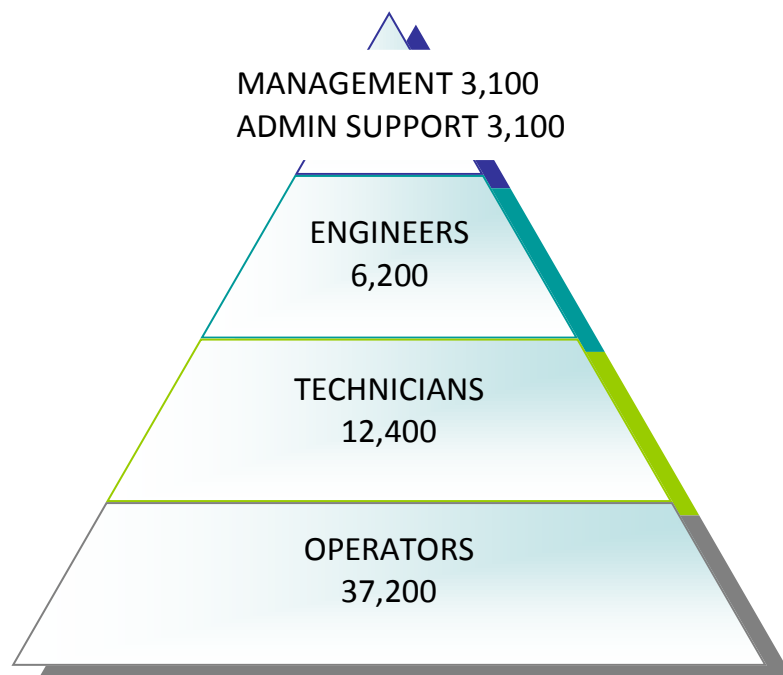


Figure 3. Projected Number of Skilled Workers for 2014-2016 in the Electronics Industry



Source: SEIPI

TESDA conducts consultations with industry associations and concerned government agencies to determine priority skills requirement for the industry.

A functional analysis is part of the industry consultation process. It is a technique used to describe whole industry functions at a level above individual occupations or jobs. It provides an overview on how the sector is organized to deliver its goal (please see Annex A-Functional Map).

With the functional analysis map, TESDA and SEIPI were able to draw out the skills requirements needed and the projected employment demand for 2014.

QUALIFICATIONS²	2014 (employment projection)
1. Semiconductor and Electronics Production Line Backend Operators (45%)	6,100
2. Semiconductor and Electronics Production Line Frontend Operators (43%)	5,800
3. Electronics Production Line SMT Operators (4%)	500
4. Semiconductor and Electronics Manufacturing Process Technician (2%)	500
5. Semiconductor and Electronics Equipment Repair and Maintenance Technician (4%)	900
6. Semiconductor and Electronics R&D Technician (5%)	1,200
7. Reliability and Failure Analysis Technician (1.5%)	300

IV. TVET Supply

Table 1 shows the number of TVET graduates for the electronics industry for the 1st quarter of 2013.

Table 1. No. of TVET Graduates in Electronics Industry, 1st Quarter of 2013

Qualification Title	WTR³	NTR⁴	Total
Electronics Production Line-Back-End Operation Level 1		381	381
Consumer Electronics Servicing NC II	297		297
Cellphone Repair and Maintenance		214	214
Consumer Electronics		165	165
Mechatronics Servicing NC II	152		152
Integrated Circuit Assembler (ICA)		109	109
Electronics Assembler		106	106

² These qualifications were approved and prioritized by the TESDA Board for Training Regulations development during its 17 December 2013 Board Meeting.

³ WTR – With Training Regulations

⁴ NTR – No Training Regulations

Wire Processing		66	66
Instrumentation and Control Servicing NC IV	24		24
Appliance Servicing		25	25
Instrumentation and Control Servicing NC IV	24		24
Mechatronics Servicing NC III	23		23
Industrial Instruments Technician		12	12
Process Technician		9	9
Electronics Technician		2	2
Total			1,609

Source: TSDO, TESDA

Table 2 shows the number of persons assessed and certified in the electronics sector. The trend reveals an increasing certification rate from 66.8% in 2010 to 72.5% for 2012.

Table 2. Number of Persons Assessed and Certified, 2010-2012

Sector	2010			2011			2012		
	A	C	%	A	C	%	A	C	%
Electronics	23,455	15,679	66.8	33,112	23,388	70.6	40,686	29,516	72.5

Source: CACO, TESDA

Legend:

A-Assessed

C-Certified

%-Certification rate

V. Implications to Technical Education and Skills Development

The industry still faces many challenges as it seeks to establish itself as a prime mover in the region. As such, TESDA needs to be abreast of what the industry needs so as to be relevant, specifically with the technical talent required by the industry. Strategic actions should be undertaken in order to realize the opportunities offered by the industry:

- Recognizing the need to beef-up the Research and Development component of the industry, TESDA should develop specialized training programs with a strong orientation on research.
- Expedite the development of the training regulations for the seven (7) prioritized qualifications in the industry.
- Consistently improve training programs and qualification system to embrace green skills and green jobs in the electronics industry. Efforts should focus on identifying new skills in order to understand the changing requirements of the industry.
- Strengthen TESDA-Industry Partnership for the development of TRs for the prioritized qualifications and in the implementation of strategic actions to meet the changing demands in the industry. The partnership will also be in terms of policy and planning, labor market intelligence, training delivery, assessment and certification and financing.
- Pursue enterprise-based trainings like dual training system (DTS) and apprenticeship with the member companies of the industry association.
- Purposively direct scholarships and other training assistance to these critical and hard-to-fill skills requirements/qualifications.
- Consistently improve the quality of information and career guidance to students on their career choices and employment opportunities in the industry.

Sources and References:

Lachica, Dan. “*The Philippine Semiconductor and Electronics Industry Roadmap*”. Presentation during the 16th TESDA Board Direction Setting Committee Meeting. 09 December 2013.

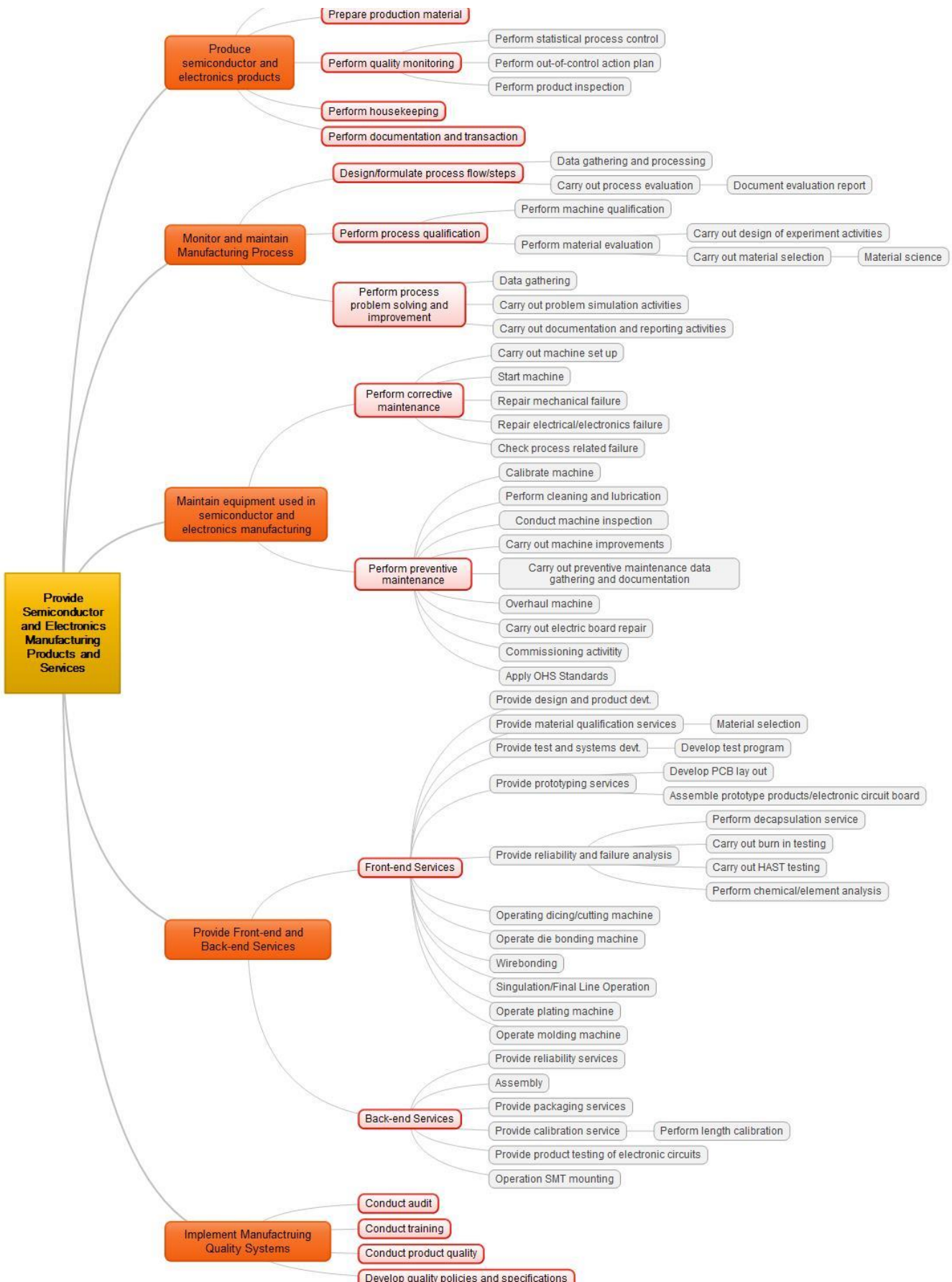
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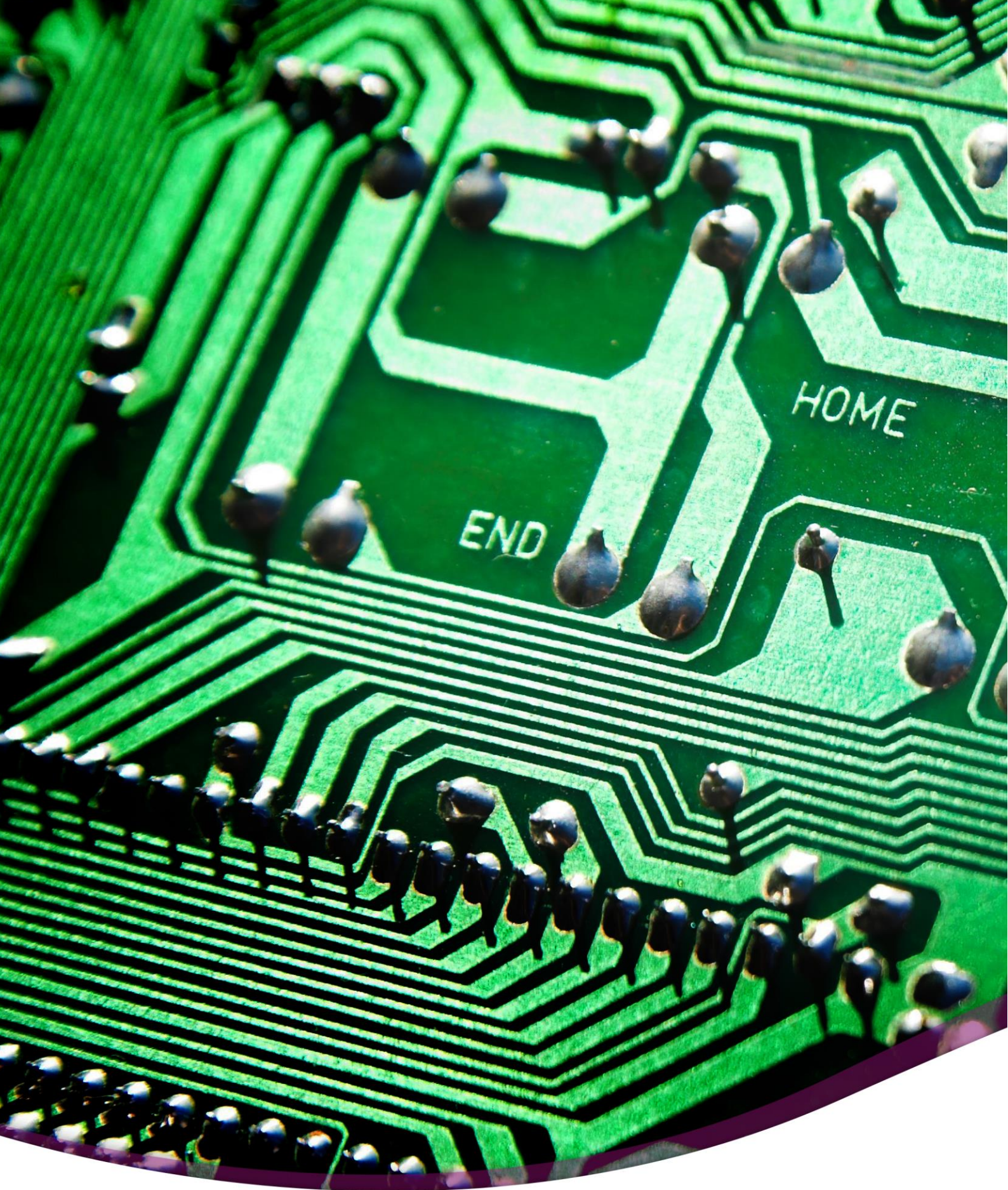
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SEIPI website at www.seipi.org.ph/

Functional Analysis of the Electronics Industry



Key Purpose	Major Function	Minor Function	Individual Sub-Functions/Core Competencies
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