

AN ANALYSIS OF COMPUTER HARDWARE EXPORTS OF INDIA

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ABSTRACT

The Computer Hardware exports have been widely studied. It also examined the trends in Computer Hardware production, Changes in the direction of Computer Hardware Exports and also study the major companies Exporting Computer Hardware. Middle East countries remain the top destination of Computer Hardware during the year 2011-12. Personal Computer has emerged to be the top item during the year 2011-12. It has been observed that the Computer Hardware sector not only contributes significantly to export earnings and GDP but also emerges as a major source of employment generation in the country. Though the Computer Hardware sector in India is small at present, there are several advantages which India can effectively leverage to achieve higher growth.

Keywords: Information Technology, Computer Hardware, Exports, Production, Destination

INTRODUCTION

Information Technology (IT) essentially refers to the digital processing, storage and communication of information. Therefore, IT can be used potentially in every sector of the economy. The IT industry has shaped up as a major success in India. The liberalized policy initiatives of the Government during the last decade have propelled the Indian IT industry on to a path of development and prosperity by leaps and bounds. Electronics and IT are the basis for development and growth of any economy.

Hardware and Software are the two main components of IT sector. The Computer Hardware and Computer Software and Services entered India's export horizon recently and has emerged as a fore-runner among all industries and has been consistently trading on a high growth path. Over the years, the Computer Hardware Industry has evolved to offer several innovative products for the convenience of the mankind. Computer devices have become integral part of human life and are playing a major role in their everyday routine activities. The computer hardware industry is identified as one of the fastest growing segment in terms of international trade.

OBJECTIVES

1. To evaluate the trends in Computer Hardware production and Exports of India.
2. To examine the changes in the direction of India's Computer Hardware Exports.

DATA SOURCES AND METHODOLOGY

A multi-pronged approach has been adopted for the study on Computer Hardware Exports of India. The present study based on secondary sources. The data collected from Electronics and Computer Software Export Promotion Council of India (ESC). Simple Statistical tools like percentages, annual growth rates have been used wherever necessary. This paper makes an attempt to delineate various dimensions of Computer Hardware export from India.

Computer Hardware

Hardware is a comprehensive term for all of the physical parts of a computer, as distinguished from the data it contains or operates on, and the software that provides instructions for the hardware to accomplish tasks. The boundary between hardware and software is slightly blurry - firmware is software that is "built-in" to the hardware, but such firmware is usually the province of computer programmers and computer engineers in any case and not an issue that computer users need to concern themselves with.

A typical Personal Computer, (PC) contains in a desktop or tower case the following parts:

- Motherboard which holds the CPU, main memory and other parts, and has slots for expansion cards
- power supply - a case that holds a transformer, voltage control and fan
- storage controllers, of IDE, SCSI or other type, that control hard disk , floppy disk, CD-ROM and other drives; the controllers sit directly on the motherboard (on-board) or on expansion cards
- graphics controller that produces the output for the monitor
- the hard disk, floppy disk and other drives for mass storage
- Interface controllers (parallel, serial, USB, Fire wire) to connect the computer to external peripheral devices such as printers or scanners.

Importance of Computer Hardware

1. Every computer consists of hardware and software. Both the hardware and the software are very important to operate the computer. Any problem that might occur within the hardware or software influences the computer functioning. It is very important to know about its components and operation to overcome problems that might occur within PC. As the hardware being the most important part which influences the software as well, it is necessary to know about the hardware, in order to purchase good quality PC so that it might function properly.
2. A very important aspect about the importance of computer hardware is its memory. Every user has heard about the random access memory (RAM) that deals with the way in which data is being stored. The RAM is a vital element of PCs. Without

which it is impossible to find important programs within the system which are in use for every day purpose. In addition, to that it deals with the analysis of every move that a user makes on computer.

3. The RAM is one of the elements to determine the importance of computer hardware. As suggested by its name this element deals with using stored data in a random way, according to the needs of the user to access data. This is very essential for every program installed within the PC. This is because no program could function properly without it.
4. As soon as we turn on PC, the RAM starts functioning. It determines the programs based on the user preferences and those will be open as soon as the computer is on. This is because the RAM automatically brings out the programs used and which are important for the user.
5. Motherboard is another important component of hardware computer. All components are connected to it and thus it maintains the functioning of all other components. The central processing unit (CPU) is also considered as important element. The CPU is considered to be the brain of any computer. The CPU is important to maintain its speed and performance.
6. The hard drive is another vital element. The role of hard drive is to store permanent data. It helps to make changes in the data as per the requirement. Hence, Computer hardware can be considered as the most important part of PC.

Computer Hardware industry in India

Computer and Information Technology (IT) industry in India is one of the thriving industries growing at a consistent & fast pace. The industry has built-up valuable brand equity for itself in the International markets and also reckoned as a pioneer in software development & IT-enabled services. Computer & IT industry in India originated in the 1974, under unfavourable conditions when local markets were absent & government policies towards private enterprise were very hostile. Today, Indian IT companies such as TCS, Wipro, Infosys & HCL are known in the worldwide market for their IT accomplishment.

Table 1. Computer Hardware in India (Rs. Crores)

Year	Production	% Change over previous year	Export	% Change over previous year	% of exports in production
2004-05	8800	-	1200	-	13.64
2005-06	10800	22.73	1025	-14.58	9.49
2006-07	12800	18.52	1500	46.34	11.72
2007-08	15870	23.98	990	-34.00	6.24
2008-09	13490	-15.00	1650	66.67	12.23
2009-10	14430	6.97	1900	15.15	13.17
2010-11	14970	3.74	1300	-31.58	8.68
2011-12	16500	10.22	2100	61.54	12.73
CAGR	7.6*	-	7.8***	-	-

Note: * Significant at 1% level, ***Significant at 10 % level

Source: Electronics and Software Export Promotion Council, Statistical Year book, various issues.

Table 1 represents the production of computer hardware in India. It is clear from the Table that the value of computer hardware produce increased from Rs. 8,800 crores in 2004-05 to Rs.16, 500 crores in 2011-12. The percentage change over the previous year in production of computer hardware registered positive growth during the study period except in 2008-09. However there is decline in the annual growth during 2009 to 2011. Again in the year 2011-12 there is a momentum in the production. Compound Annual growth rate of production of Computer hardware recorded 7.6 per cent and significant is 1per cent level. That is depicted in the bar diagram.

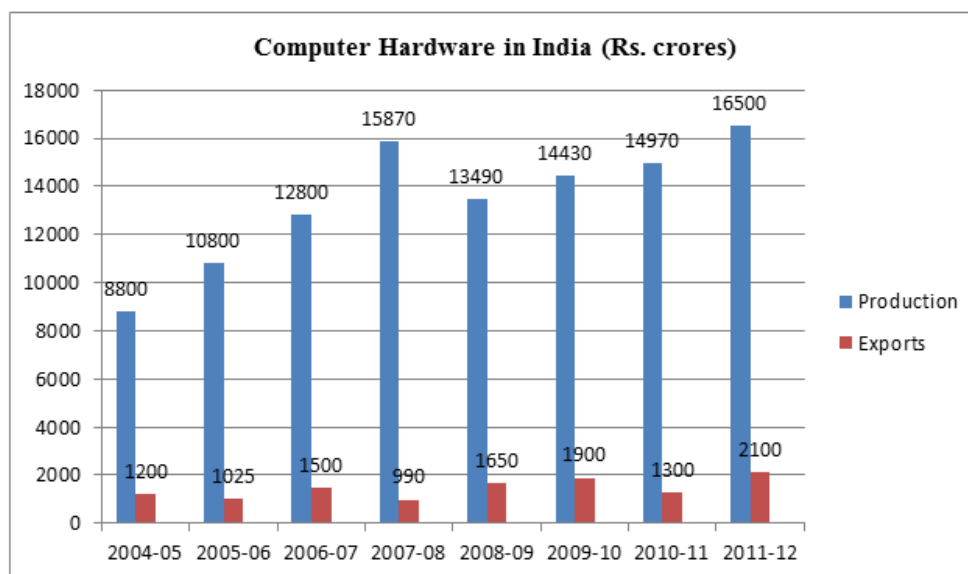


Table 1 also shows the Exports of computer Hardware in India. It is clear from the table that the value of computer hardware export is ranged between Rs.990 crores in 2007-08 and Rs. 2100 crores in 2011-12. There are much up and downs in annual growth of the exports of computer hardware. During the study period the highest percentage change over the previous year recorded in 2008-09 to the extent of 66.67 per cent. Hence though the compound annual growth recorded 7.8 per cent it is significant only at 10 per cent level. This implies that the export of hardware from India is not consistence during the study period.

The Computer Hardware industry consists of companies engaged in assembling and manufacturing computers, computer hardware and computer peripherals. The industry includes storage devices, keyboards, printers, monitors, mouse and other pointing devices, Webcams and PC cameras, as well as ATM machines. The Computer Hardware industry excludes semiconductor computer components, such as microprocessors and circuit boards. Exporting major items of computer hardware from India are DVD Drives, Personal computers, Mother Boards, Monitor Scanner, Printer, Mouse, Hard Disk Drives, Micro processors etc. The major export destinations include EU Countries, South Asian Countries, North America, Middle East Countries and Latin America. The most popular items of export are Hardware Components, Monitor, Mouse, Server & Work Stations, Notebooks/Laptops, Peripherals, Scanner and Projectors.

Destinations of Computer Hardware Exports

Table 2 indicates that the direction of trade of computer hardware from India. It is clear from the Table that the exports of India to Singapore, Hongkong & other South Asian Countries ranged between 44.94 per cent in 2003-04 and 5.57 per cent in 2006-07, to EU countries ranged between 28.61 per cent in 2008-09 and 6.54 per cent in 2005-06, to North America ranged between 71.33 per cent in 2006-07 and 14.42 in 2009-10. The exports of India to Japan, Korea, other Far East Countries, Australia & Other Ocean Countries ranged between 16.1 per cent in 2005-06 and 1.27 per cent in 2002-03.

Table 2. Direction of Computer Hardware Exports (Rs Crores)

Destination	2002-03	2003-04	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Average
Singapore, Hong Kong & other South Asian Countries	208 (37.82)	647.18 (44.94)	220 (21.46)	83.5 (5.57)	147 (14.85)	375.92 (22.78)	569 (38.38)	499 (29.95)	400 (19.05)	349.96 (25.47)
Europe (EU countries)	82 (14.91)	130.28 (9.05)	67 (6.54)	165 (11)	293 (29.6)	472.01 (28.61)	500 (26.32)	260 (20)	240 (11.43)	245.48 (17.86)
North America	127 (23.09)	453.6 (34.5)	511.5 (49.9)	1070 (71.33)	31 (3.13)	356.05 (21.58)	274 (14.42)	190 (14.62)	400 (19.05)	379.24 (27.6)
Middle East countries	122 (22.18)	118.43 (8.22)	44 (4.29)	48 (3.2)	81 (8.18)	195.14 (11.83)	266 (14)	150 (11.54)	770 (36.67)	199.4 (14.51)
Japan Korea other Far East Countries Australia & Other Ocean Countries	7 (1.27)	25.7 (3.87)	165 (16.1)	100 (6.67)	324 (32.73)	53.9 (3.27)	125 (6.58)	79 (6.08)	125 (5.95)	111.62 (8.12)
African countries	2.56 (0.47)	28.72 (1.99)	12 (1.17)	30 (2)	80 (8.08)	55.71 (3.38)	75 (3.95)	38 (2.92)	65 (3.10)	43.00 (3.12)
Russia and C.I.S countries	0.3 (0.05)	1.1 (0.08)	0.5 (0.05)	1.6 (0.11)	2 (0.2)	6.6 (0.4)	12 (0.63)	12 (0.92)	4 (0.19)	4.46 (0.32)
Australia & Other Ocean Countries	1 (0.18)	1.8 (0.13)	3 (0.29)	0.5 (0.03)	2 (0.2)	16.41 (0.99)	15 (0.79)	4 (0.31)	10 (0.48)	5.97 (0.43)
Europe (Non EU Countries)	0.14 (0.03)	3.02 (0.21)	1 (0.1)	0.4 (0.03)	1 (0.1)	3.58 (0.22)	4 (0.21)	3 (0.23)	6 (0.29)	2.46 (0.17)
Total	550	1440	1025	1500	900	1650	1900	1300	2100	1373.89

Note: Figures in brackets show the percentage of Sectoral Total.

Source: Electronics and Software Export Promotion Council (ESC), Statistical Year book, various issues.

North America has the highest share (379.24) of exports from India. It implies that the share of North America is highest followed by Singapore, Hongkong and Other South Asian Countries, European Union and middle East countries to the percentage of 27.6, 25.5, 17.8 and 14.5 respectively and the share of Exports to other countries is considerably low.

Table 3. Top Exporters of Computer Hardware in India

2000-01		2003-04		2006-07		2009-10		2011-12	
Company	Total Export Rs. Lakh	Company	Total Export Rs. Lakh	Company	Total Export Rs. Lakh	Company	Total Export Rs. Lakh	Company	Total Export Rs. Lakh
1. Celeton India Pvt. Ltd.	83648	1. Celetonix India Pvt Ltd.	82035.3	1. Celetonix India Pvt Ltd.	175.26	1. L.G. Electronics India Pvt. Ltd.	48074.43	1. Dell India Pvt. Ltd	47697.21

Table 3. Top Exporters of Computer Hardware in India

2000-01		2003-04		2006-07		2009-10		2011-12	
Company	Total Export Rs. Lakh	Company	Total Export Rs. Lakh	Company	Total Export Rs. Lakh	Company	Total Export Rs. Lakh	Company	Total Export Rs. Lakh
2.Global Tele Systems Ltd.	3563.61	2.Celetronic Power India Pvt. Ltd.	7132.07	2. L.G. Electronics India Pvt Ltd.	59.32	2.Eros International Media Pvt. Ltd	19109.5	2.Honeywell Automation India Ltd.	13387.31
3. Tata InfoTech Ltd,(Formerly Unisys Ltd.)	1781.00	3 Hewlett Packard India Sales Pvt. Ltd.	5130.12	3.Celetronic Power India Pvt. Ltd.	23.17	3.Honeywell Automation India Ltd.	5086.24	3.Prime Focus Ltd.	19635.44
4. VXL Instrument Ltd.	1540.42	4. Hewlett Packard India Sales Pvt. Ltd. (Compac Computer(1) Pvt. Ltd).	4444.84	4. VXL Instrument Ltd.	6.80	4.Accel Frontline Services Pvt. Ltd.	2083.06	4.HCL Info system Ltd.	2285.00
5.Cortech Systems(India) Pvt. Ltd.	1429.21	5.Samsung India Electronic Ltd.	2906.68	5. Samsung India Electronic Ltd.	5.89	5.Smartline Services Pvt. Ltd	1974.73	5.Simmatronics Semi-Conductors Ltd.	2227.59
6.Zenth Computers Ltd.	1313.08	6.VXL Instrument Ltd.	1699	6.Kobain Electronics India Pvt. Ltd	3.82	6.Digicom p Complete solutions Ltd.	1858.66	6.Accel Frontline Services Pvt. Ltd	1974.91
7.Godrej&Boyce Mfg. Co. Ltd. EDM Div.	1165.00	7.Barco Electronic Systems Pvt. Ltd.	781.97	7.Pan India Network Intrawest Pvt. Ltd	3.05	7.Mirc Electronics Ltd.(ONIDA)	1155.41	7.L.G. Electronics India Pvt. Ltd.	1617.90
8.D-Link (India) Pvt. Ltd.	171.33	8.L.G. Electronics India Pvt Ltd.	667.01	8. Zenith Computers Ltd.	2.69	8.OPC Technology Japan Pvt. Ltd.	1076.99	8.Smartlink Networks Systems Ltd.	793.98
9.Benning SMC Power Systems (P)Ltd.	120.61	9. Zenith Computers Ltd.	529	9.WEP Peripherals Ltd.	2.13	9.Vega Controls Pvt. Ltd.	810.29	9.OPC Technology Japan Pvt. Ltd.	446.22
10.Barco Electronic Systems (P) Ltd.	53.70	10 WEP Peripherals Ltd.	255.29	10. MIC Electronics Ltd.	1.66	10. Bloom Energy India Pvt. Ltd.	669.98	10.Sil-Kee Electronics Pvt. Ltd.	405.40

Source: Electronics and Software Export Promotion Council (ESC), Statistical Year book, various issues.

Table 3 give the top 10 exporters of Computer Hardware is selected years along with the value of exports. It is observed from the table that there is much diversion in the production of Computer Hardware among the companies. For instance in 2001celetronic India. Pvt. Ltd exported the highest volume of computer hardware and in 2011-12 the Dell India. Pvt. Ltd exported the highest amount. The value of exports by 2001celetronic India. Pvt. Ltd is Rs. 83648 Lakhs in 2000-01 and by Dell India Pvt. Ltd Rs. 47697.21 Lakhs. in 2011-12.

MAJOR FINDINGS OF THE STUDY

A few of the findings emanating from the study are:

1. India's lack of success in exporting computer hardware to the global market is deeply rooted to a variety of reasons which range from market dynamics to inadequacy of support policy initiatives.
2. Poor basic infrastructure.
3. Long business cycles.
4. Inadequacy of domestic investment, inability to attract foreign investment, mega investments from multinational companies.
5. Lack of large scale manufacturing, and competitive product pricing.
6. Lack of initiatives for new product development.

MAJOR RECOMMENDATIONS

Government of India and the Indian Computer Hardware manufacturers have to work in tandem, and take some proactive initiatives.

The initiatives to be taken by the Government of India include:

1. Identification of a vision and strategic growth plan.
2. Reducing operational costs of manufacturing and improving business attractiveness.
3. Promoting single manufacturing clusters.
4. Promoting R&D activities and human resource development.
5. Promoting India as an ideal destination for Computer Hardware manufacturing.
6. Promoting anchor investment in Indian Computer Hardware industry.

CONCLUSION

From the above analysis, it is clear that Hardware is an area which will work as a catalyst to make India a 'Global IT Super Power'. The share of hardware export in total export as well as its contribution to GDP has steadily increased over the years. That hardware sector has emerged as a foreign exchange earner and generator of large scale employment opportunities. So the Computer Hardware Sectors is very important for development of Indian Economy.

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