



Office of the Principal Scientific Advisor
to the Government of India

Note on R&D Exports





The Objective of this note is to:

- Define R&D Exports
- Discuss its characteristics
- List of Units under STP exporting R&D
- Discuss its growth profile in India and Abroad
- Key factors for R&D Exports
- Issues & Way Forward

Key Facts

- 1. World Exports of R&D:
USD 173 billion (2019)**
- 2. India's Exports of R&D:
USD 5 billion (2019)**
- 3. India's Share of R&D
Exports in GDP (2019):
0.2%**

Source: RBI

R&D Exports – Definition

- According to the International Monetary Fund, Sixth Balance of Payments Manual (BPM6) edition (para 10.147), Research and Development is defined as:
- Research and development services consist of services that are associated with basic research, applied research, and experimental development of new products and processes. In principle, such activities in the physical sciences, social sciences, and humanities are covered, including the development of operating systems that represent technological advances. Also included is commercial research related to electronics, pharmaceuticals, and biotechnology. The definition of research and development services used here is in line with the Central Product Classification (CPC); it includes other product development that may give rise to patents. Outright sales of the results of research and development (such as represented in patents, copyrights, and sale of information about industrial processes) are included in research and development.



R&D Exports – Characteristics

- R&D exports or transactions per se can be made in many forms. Tangible R&D exports are happened in the form of licensing of “intellectual property” (Patents). The intangible sources of R&D exports include technology applied to develop a software programme or a design which are being exported; the technology embodied in an exported intermediate product like a mobile chip to be used to produce final goods like mobile; technology transfer of MNEs or TNCs through FDI and mobility of people in host countries; and outflow of technical services.
- In general, two broad categorisations have been made to different forms of R&D transactions. Those categorisations are horizontal; and vertical transactions. Horizontal transactions are said to be those where one rival firm licensing out its technology to its potential or actual rivals. Vertical transactions are said to be those where one firm licensing out its technology to its non-rivals.
- Given the presence of larger proportion of R&D transactions through intangible sources, the real R&D export figures are underestimated. Even it is difficult to trace out the R&D exports through tangible sources in the recent complex nature of global technology transactions. In any R&D transactions, there are two types of players involved: funder; and producer/performer. There may be more than two funders involved in development of any technology and the funding may come from those private and/or government source funders and from different countries of origin.



- Furthermore, performers or purchaser of R&D may be any MNEs purchased the technology and utilizing it in its foreign subsidiary host country through FDI. For instance, it is found that USA's R&D services export was 5 per cent of total domestic R&D performance in the early 2000s, and this ratio was four times larger for the R&D services export of foreign owned firms in USA. Hence, the R&D export should be defined as the Cross-border exchanges and transactions between residents and non-residents.

List of R&D Exporting Units

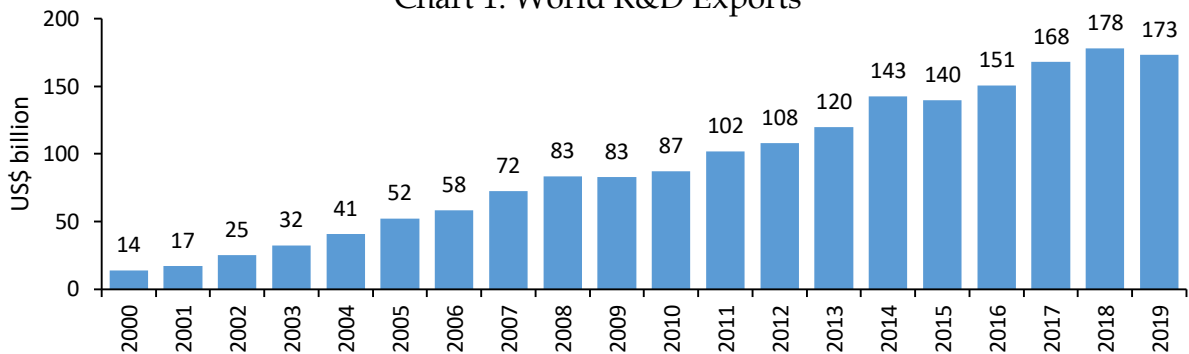
- Ministry of Electronics and Information Technology has provided a list of R&D Exporting units which are registered under the STP Scheme. The list can be seen at Annex-1. As per this list, there are 113 R&D Exporting units registered under STP scheme. They are by and large located in Bangalore, Pune, Noida and Hyderabad. The major players in this are Samsung, SAP, and Adobe.

Growth Profile – Global

- The International Trade Centre's data (2019) on cross-country trade in services reveals the following:
- During the past two decades, world R&D exports had witnessed a robust compound annual growth rate of 15 per cent.
- World R&D exports have grown from US\$14 billion in 2000 to US\$ 87 billion in 2010 and stood at US\$ 173 billion in 2019 (Chart 1).



Chart 1: World R&D Exports

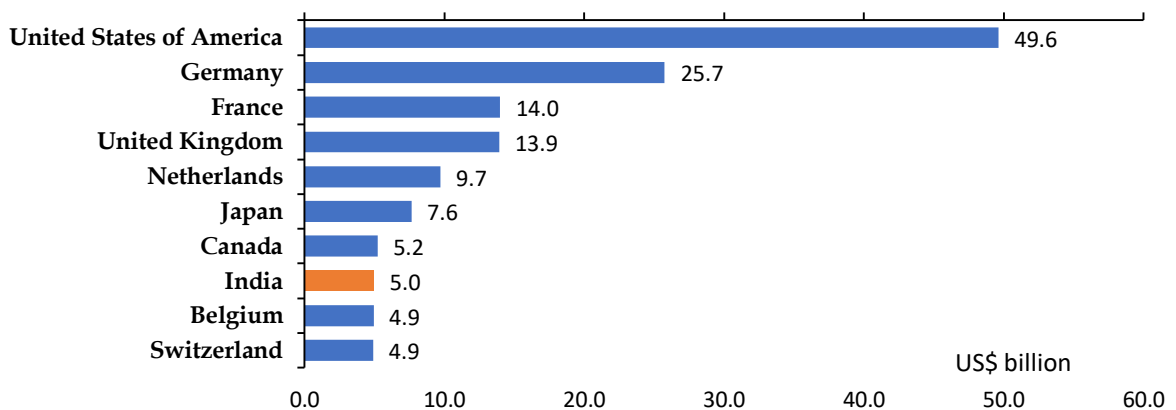


Sources: ITC, UNCTAD, WTO trade in services database based on Eurostat, International Monetary Fund, Organisation for Economic Co-operation and Development (OECD) and relevant national statistical authorities statistics, RBI.

Leading Exporters: Global

USA is the world leader in R&D exports (US\$ 49.6 billion) followed by Germany (US\$ 25.7 billion), France (US\$ 14.0 billion), UK (US\$ 13.9 billion), Netherland (US\$ 9.7 billion), Japan (US\$ 7.6 billion), Canada (US\$ 5.2 billion) and India (US\$ 5.0 billion) (Chart 2). These top 10 countries account for four-fifths of the world R&D Exports.

Chart 2: Top 10 Exporters of R&D Exports in the World - 2019



Sources: ITC, UNCTAD, WTO trade in services database based on Eurostat, International Monetary Fund, Organisation for Economic Co-operation and Development (OECD) and relevant national statistical authorities statistics, RBI.



Growth Profile – India

- According to the International Trade Centre (ITC) database, India is the Eight- largest R&D exporter country in the world.
- India’s R&D exports have grown from US\$ 0.8 billion in 2011 to US\$ 5.0 billion in 2019 (Chart 3). India has a positive trade balance in R&D services (exports & imports).

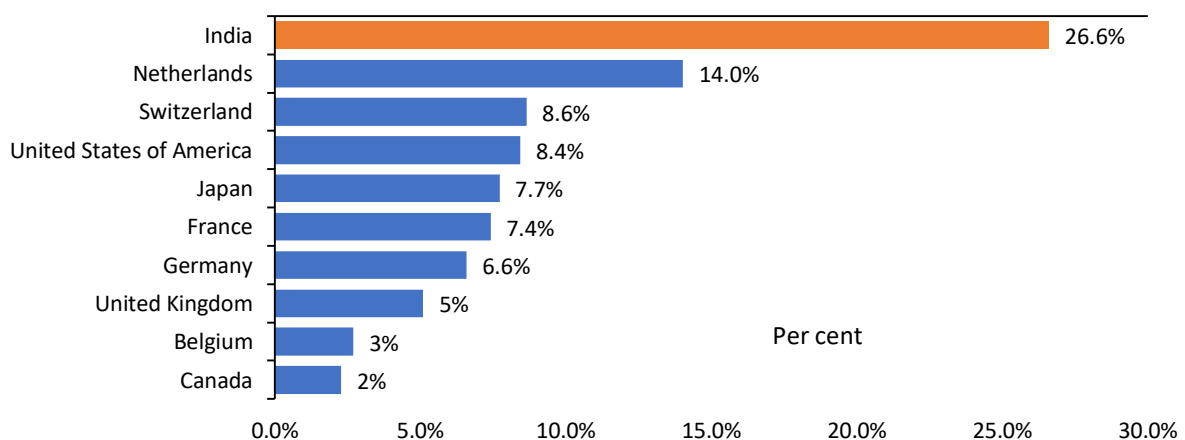
Chart 3: Trend in India's R&D Exports and Imports



Sources: ITC, UNCTAD, WTO trade in services database based on Eurostat, International Monetary Fund, Organisation for Economic Co-operation and Development (OECD) and relevant national statistical authorities statistics, RBI.

- During the last nine years, India’s R&D exports have witnessed a robust compound annual growth rate of 27 per cent (Chart 4). India’s R&D exports account for 2.3 per cent of India’s total services exports.

Chart 4: Compound Annual Growth Rates: Top 10 R&D Exporting Countries (2011-2020)





Key factors for R&D Exports

- There are two key factors for R&D exports; they are : i) FDI and ii) Imports of R&D Services, which are discussed below:

FDI

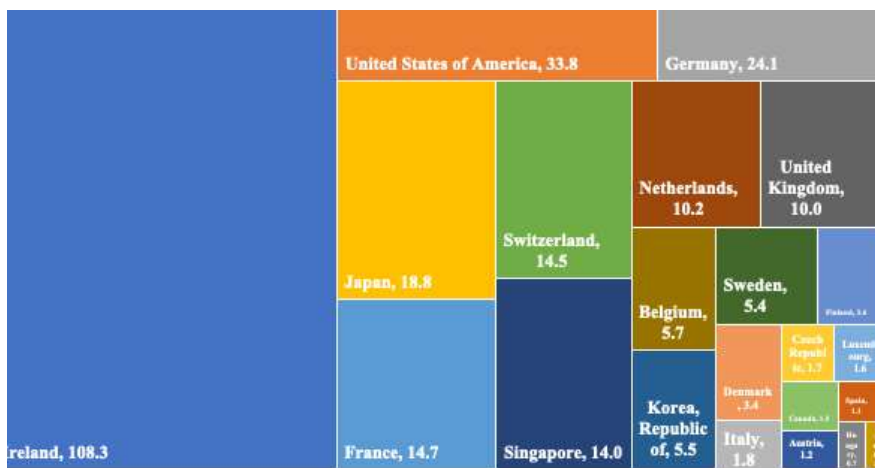
- Studies have shown that FDI is one of the key factors behind high economic growth achieved, in South Korea, China, India, Malaysia and Singapore. They found that once these countries internalised the knowledge and technology by means of producing high-tech and high value-added products; they managed to export them in the global competitive market and as a catalyst for upgrading in global value chains (Erdal & Gocer, and Guimon). However, in India, the FDI in R&D (RDFDI) accounts for only a tiny share of total FDI inflows into the country (0.2 per cent in 2018); and it is mostly concentrated in four sectors – ICT, natural sciences and engineering (NSE), pharmaceuticals and clinical research, which accounted for more than 80 per cent of total RDFDI (Joseph, Dhar and Singh, 2019).

Import of R&D Services:

- Import of R&D services is concentrated in a few countries. During 2019, Top 7 countries account for around four-fifths of the world R&D imports. Ireland is the largest R&D importing country with a share of 38.0 per cent in the world R&D imports followed by USA



(11.9 per cent), Germany (8.5 per cent), Japan (6.6 per cent), France (5.2 per cent), Switzerland (5.1 per cent) and Singapore (4.9 per cent) (Chart 5). In order to enhance the potential of India's R&D services exports, the import requirements of these countries need to be gauged so that domestic policy support may be prioritised accordingly.



Sources: ITC, UNCTAD, WTO trade in services database based on Eurostat, International Monetary Fund, Organisation for Economic Co-operation and Development (OECD) and relevant national statistical authorities statistics, RBI.



Issues & Way Forward

- There are two main issues relating to R&D Exports which are as follows:
- The RBI compiles data on services (exports & imports), it follows the standard balance of payment manual of IMF. This definition is however does not cover many exports of software services which are R&D driven, it is therefore necessary to revisit the definition of R&D exports.
- There is no mention of R&D exports in the Export & Import Policy of Government of India. This matter has been taken up with Ministry of Commerce.

Way Forward:

- A separate Export Promotion Scheme for R&D Export maybe formulated by MeitY for providing support to R&D exports.



Export (in Rs. Lakh)

S. No.	Name of the unit	Directorate	Nature of Services being exported as R&D	Last 3 years					
				Next 3 years (Projections)					
				2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
1	Mobile Aspects Inc	Bengaluru	Healthcare Software development	276.01	273.59	275.34	280.00	284.00	300.00
2	VividSparks Solutions	Bengaluru	Implementing high end computing chips. It is a product-oriented company with expertise in Artificial Intelligence, Machine Learning, High Performance Computing, and Scientific Computing, ASIC, GPU.	0.00	0.00	7.00	25.00	50.00	100.00
3	Pramati Technologies Private Limited	Bengaluru	Software Product Development	4071.33	9216.31	10020.04	11000.00	12100.00	13310.00
4	Anora Semiconductor labs Pvt Ltd	Bengaluru	Testing & Engineering services	823.48	970.48	907.85	950.00	1000.00	1050.00
5	Aricent Technologies Holdings Ltd	Bengaluru	Embedded software, Software maintenance, migration, telecom software & solutions, software testing, IT enabled services	27320.60	43233.29	35974.12	37772.82	39661.46	41644.54
6	Aricent Technologies Pvt Ltd	Bengaluru	Embedded software, Software maintenance, migration, telecom software & solutions, software testing, IT enabled services	3671.72	5896.39	3747.25	3934.61	4131.34	4337.91
7	ADOBE SYSTEMS INDIA PVT LTD	Bengaluru	Computer Software R & D Engineering & Design	89391.00	104147.00	114561.00	126017.00	138619.00	152481.00
8	GIKU Technologies Pvt.Ltd	Bengaluru	Network Switching, Routing and Security	0.00	0.00	28.00	28.00	100.00	200.00
9	ALE INDIA PRIVATE LIMITED	Bengaluru	Software Product Development	2876.62	3126.70	3417.60	3700.00	4500.00	5000.00
10	Mitel Cloud Communications Pvt. Ltd.	Bengaluru	Telecommunication	5806.30	4658.38	4,892.23	4900.00	4900.00	4900.00



11	Achronix Semiconductors India Pvt Ltd	Bengaluru	Field Programmable Gate Array (FPGA) solution provider for product research and development including software development, IP development, application engineering, and customer support software.	813.97	1482.60	2299.30	2110.00	2550.00	2800.00
12	Horner Engineering India Private Limited	Bengaluru	Embedded Software	556.69	642.71	766.39	800.00	900.00	1,000.00
13	Valtech India Systems Pvt Ltd Unit II	Bengaluru	Information Technology Software Services	8301.00	10005.00	12,347	12816.00	13714.00	14674.00
14	Audience Communications Systems India Pvt Ltd	Bengaluru	Audio /Voice	4845.91	5687.56	6150.84	6200.00	6300.00	6400.00
15	VMWare Software India Private Limited	Bengaluru	Software Development & Testing	51796.75	93023.87	149778.57	194712.14	253125.78	329063.52
16	NXP INDIA PRIVATE LIMITED	Bengaluru	IT/ ITES (Chip design, testing, development & customer support)	8314.61	40165.63	44683.51	48200.00	50610.00	55671.00
17	Intermec Softwares Pvt Ltd.	Bengaluru	IT & ITES	317.73	407.92	651.82	1141.00	1883.00	2730.00
18	Riverbed Technology India Pvt Ltd	Bengaluru	Embedded Software	6352.70	7326.22	6402.62	7043.00	7747.00	8522.00
19	QuickLogic Software India Pvt. Ltd	Bengaluru	IT Services (Software Development)	1945.00	1889.00	1509.00	750.00	750.00	750.00
20	Essential Products Labs Private Limited	Bengaluru	Software Development	213.43	924.13	963.78	268.02	NIL	NIL
21	SAP Labs India Private Limited. Bangalore.	Bengaluru	SAP Labs is the core R&D center which mainly involved in developing and constantly improving the key SAP solutions.	292030.03	368553.68	408739.11	543622.87	588134.55	602823.40
22	Anritsu India Private Limited	Bengaluru	IT Software Development	513.36	793.70	1480.38	2000.00	2200.00	2500.00
23	Itron India Pvt Ltd	Bengaluru	IT Enable service	11582.00	12722.00	15363.64	17668.00	19435.00	21378.00
24	Nvidia Graphics Pvt Ltd, Bangalore	Bengaluru	IT/ITES	57296.00	72491.00	100319.00	125399.00	156749.00	195936.00



25	Mavenir Systems Pvt Ltd	Bengaluru	R&D requirement analysis, design, development, validation and operational support of next generation Mobile (Voice/Video over 5G/LTE, RMS, EPC) and Enterprise telecomm (PBX) solutions.	27136.87	32157.37	40346.43	50000.00	61000.00	70000.00
26	Intel Technology India Pvt Ltd	Bengaluru	R & D	383024.68	631050.00	718539.41	852500.00	954800.00	1088472.00
27	Sankhasutra Labs Private Limited	Bengaluru	Software Development Services - Semiconductor	177.01	354.82	183.07	200.00	1000.00	3000.00
28	Prysm Displays India) Pvt Ltd	Bengaluru	IT - Software Architecture, Design & Coding for image Proc & Display Technology	2536.05	1311.76	474.33	699.62	788.81	946.57
29	Samsung R&D Institute India-Bangalore Pvt. Ltd.,	Bengaluru	Software	169112.50	210934.68	254777.26	280254.99	308280.48	339108.53
30	Bravoventure India Pvt Ltd	Bengaluru	Embedded Software	1983.00	1868.00	2293.00	2408.00	2529.00	2655.00
31	KARMIC DESIGN PRIVATE LIMITED	Bengaluru	IT	737.36	903.44	991.17	950.05	988.06	1027.58
32	Chelsio Communications Pvt Ltd	Bengaluru	Engineering and Design	2795.54	2883.03	2764.88	2000.00	2250.00	2500.00
33	LumenData Solutions India Private Limited	Bengaluru	Software development	178.53	285.01	515.68	525.00	550.00	600.00
34	Vera Security India Private Limited	Bengaluru	Data Security Software	1812.90	1264.80	1601.24	1761.36	1937.50	2131.25
35	Philips India Limited	Bengaluru	IT & ITES	105401.14	119376.87	138540.64	152300.00	167500.00	184000.00
36	Mercedes-Benz Research and Development India Pvt Ltd	Bengaluru	1.Research and experimental development services in natural sciences and engineering 2.Information technology (IT) consulting and support services 3.Information technology (IT) design and development services	135034.00	193514.76	237317.30	284780.75	341736.91	410084.29
37	Electronics for Imaging India Pvt. Ltd	Bengaluru	Expertise in Digital Imaging Technologies for toner and inkjet based printers software applications for MIS Prepress Postpress for print industry.	14853.00	16216.00	19659.00	21000.00	23000.00	25000.00



38	Tismo Technology Solutions Pvt Ltd	Bengaluru	Software Development/Embedded Systems/IoT	789.62	1030.34	926.83	700.00	1000.00	1100.00
39	Texas Instruments (India) Pvt.Ltd	Bengaluru	Design Automation	121146.00	135346.00	154879.00	175120.00	198005.00	223882.00
40	ArisGlobal Software Pvt Ltd	Bengaluru	Pharmacovigilance & Clinical Research -(core offering is LifeSphere, a cloud platform helps hundreds of life sciences companies accelerate research and development, maintain compliance and streamline collaboration between cross-functional teams, empowering them to bring safer products to market more quickly)	20702.18	19885.17	24367.94	23678.51	25351.99	27152.73
41	Mobileum India Private Limited	Bengaluru	Development	2951.16	2959.58	3245.97	3300.00	3400.00	3500.00
42	Kirusa Software Private Limited	Bengaluru	Software and Development Services	1328.00	1226.00	1243.00	1305.15	1370.41	1438.93
43	Azuga Telematics Private Limited	Bengaluru	Information Technology Services	1641.00	1640.00	2126.00	2339.00	2573.00	2830.00
44	NI Systems India Pvt Ltd	Bengaluru	ITES	7,868.82	8,180.36	-	8,660.00	8,920.00	9,187.00
45	ABB Global Industries and Services Pvt Ltd	Bengaluru	Engineering Services	43194.00	50668.00	58932.00	64825.00	71308.00	85569.00
46	Ariba Technologies India Pvt Ltd	Bengaluru	Software development and Information Technology ('IT') enabled services	35167.33	53,169.59	55230.85	62,432.14	70763.91	80,207.58
47	Vanu India Private Limited	Bengaluru	Through Data communication -offshore	635.74	645.67	772.99	800.00	850.00	900.00
48	Huawei Technologies India Pvt Ltd	Bengaluru	R&D Software services	85175.11	90591.75	105411.49	107519.72	109100.86	108046.78
49	Microchip Technology India Pvt Ltd	Bengaluru	Software Product Development	22,492.21	21,336.52	24944.98	26192.23	28811.45	31692.60
50	Volvo Group India Pvt Ltd- NSTPI	Bengaluru	Engineering & Design Services	28034.24	37699.43	16850.36	18535.40	20388.94	21408.39
51	Ittiam Systems Pvt Ltd	Bengaluru	Embedded Software & IP	4447.33	6130.03	5438.12	5000.00	5500.00	6000.00



52	Meltwater News International Holding GmbH	Bengaluru	IT - Media Intelligence Software Services	742.62	967.70	1232.18	1502.18	1777.18	2057.18
53	Fortinet Technologies India Private Limited.,	Bengaluru	Enterprise class WIFI Software and Associated application development	6693.46	6852.29	7022.00	7373.10	7741.75	8128.84
54	ARRIS Group India Private Limited	Bengaluru	IT & ITeS	11158.47	33538.98	30987.85	31916.97	33193.65	34853.33
55	Ruckus Wireless Private Limited	Bengaluru	IT & ITeS	0.00	9648.48	10029.58	10330.47	10743.69	11280.87
56	Tecnotree Convergence Pvt Ltd.	Bengaluru	IT and IT related services	12070.78	9953.65	14153.87	16984.64	20721.26	25279.94
57	Dassault Systemes Solutions Lab Private Limited	Bengaluru	CAD/CAM/Engineering Design	6543.64	756325	8003.47	9207.90	9668.30	10151.71
58	Yahoo Software Development India Private Limited	Bengaluru	IT/ITeS	13855.76	16765.14	17620.37	17972.77	18332.23	18698.87
59	Muse Global Research Services P Ltd	Chennai	Software Product Development	22.66	24.18	23.72	-	-	-
60	ProdEx Technologies	Chennai	RFID	55.79	52.83	71.84	75.44	82.98	92.94
61	SCOPE e-Knowledge Center Pvt Ltd	Chennai	Chemical department, indexing, data services	10242.55	10438.22	12120.46	0.00	0.00	0.00
62	eG Innovations Pvt. Ltd.,	Chennai	Analytical platform	1379.31	1559.61	1621.57	1750.00	1900.00	2000.00
63	S4 Carlisle Publishing Services Pvt Ltd	Chennai	Publishing and technology Services	1414.23	1185.91	1170.31	1228.83	1290.27	1353.79
64	AMD India Private Limited	Hyderabad	IC Design	24224.41	30453.31	34609.48	34316.94	36032.79	37834.43
65	Blujay Solutions (India) Private Limited	Hyderabad	Logistics of supply chain	3416.11	364111	4138.32	4537.90	4674.03	4814.25
66	GE India Industrial Private Limited	Hyderabad	Digital Industrial Company	29802.71	29189.40	24749.42	21855.00	23391.00	24480.00
67	Intel Technology India Private Limited	Hyderabad	VLSI/ASIC	0.00	0.00	2808.22	42000.00	63000.00	98000.00
68	Microsemi Communications India Private Limited	Hyderabad	VLSI/ASIC	2604.96	2779.60	1805.40	1985.00	2185.00	2403.50



69	Microsemi India Private Limited	Hyderabad	Engineering and Design	10189.82	9319.63	9832.05	9966.54	10963.00	12060.00
70	NVIDIA Graphics Private Limited	Hyderabad	Product Development in Communication Systems	10938.28	15322.13	16910.59	19447.17	22364.25	25718.89
71	Synopsis (India) Pvt. Limited	Hyderabad	VLSI/ASIC	15022.00	20077.18	25273.72	30328.00	35788.00	41155.00
72	ADP Pvt. Ltd.	Pune	Software Research & Development	30317.96	31760.87	30940.00	32487.00	34111.35	35816.92
73	ADP Pvt. Ltd. (Unit - 2)	Pune	Product Development, R&D	5489.38	7424.52	9553.49	10031.16	10532.72	11059.36
74	Avaya India Pvt. Ltd. (Unit - II)	Pune	Telecommunication software & solution	35909.82	30620.61	26966.81	28315.15	29730.91	31217.45
75	Capsilon Software Pvt. Ltd.	Pune	Artificial Intelligence	3023.94	3559.86	4208.84	4419.28	4640.25	4872.26
76	Cisco Systems (I) Pvt. Ltd. (Unit-II)	Pune	Telecommunication, Network Equipment's, Network switch, routing	5443.98	6782.52	6915.69	7261.47	7624.55	8005.78
77	DBOI Global Services Pvt. Ltd.	Pune	Financial Service product	26358.48	33314.07	27755.92	29143.72	30600.90	32130.95
78	DBOI Global Services Pvt. Ltd.	Pune	Financial Service product	112170.06	135796.79	147045.24	154397.50	162117.38	170223.25
79	eCommera India Pvt. Ltd.	Pune	Business intelligence in form of research and analysis	2612.48	3128.47		3449.14	3621.60	3802.67
80	Ecsion Research Labs Pvt. Ltd.	Pune	Software Product Development	28.24	94.87	125.22	131.48	138.06	144.96
81	Exfo Electro Optical Engineering India Pvt. Ltd.	Pune	Optical fiber testing equipment's and R&D Center	5523.07	5923.55	6006.40	6306.72	6622.06	6953.16
82	exl Service.com (I) Pvt. Ltd.	Pune	IT Enabled Services & R&D projects	14703.10	15891.34	17812.91	18703.56	19638.73	20620.67
83	Giesecke & Devrient MS India Pvt. Ltd.	Pune	Embedded System Cards & Services	9791.92	11118.02	7834.63	8226.36	8637.68	9069.56
84	IP Access India Pvt. Ltd.	Pune	Networking	2060.97	2048.91	2150.36	2257.88	2370.77	2489.31
85	MediaTech	Pune	Graphics Animation Software Product Development	113.80	103.38	114.62	120.35	126.37	132.69
86	Open-Silicon Research Pvt.Ltd.	Pune	Engineering Design	1021.37	1533.47	3648.32	3830.74	402217	4223.39



87	Pitney Bowes India Pvt. Ltd	Pune	Software Product Development	7760.09	8881.21	6663.51	6996.69	7346.52	7713.85
88	SAS Research and Development (India) Pvt. Ltd.	Pune	Software Product Development, ITES	12302.83	13438.84	14555.39	15283.16	16047.32	16849.68
89	Synopsys (India) Pvt. Ltd.	Pune	Integrated circuit (IC) design	2871.73	3051.45	4479.71	4703.70	4938.88	5185.82
90	TIBCO Software India Pvt. Ltd.	Pune	Software Product Development	3130.54	2807.93	2459.61	2582.59	2711.72	2847.31
91	TIBCO Software India Pvt. Ltd.	Pune	Software Product Development	17833.16	19891.24	20988.47	22037.89	23139.79	24296.78
92	Transparent Value Pvt. Ltd.	Pune	Financial Services	3854.09	3957.00	3918.33	4114.25	4319.96	4535.96
93	Ugam Solutions Pvt. Ltd.	Pune	Market Research and Retail Services	14765.54	19803.97	11326.92	11893.27	12487.93	13112.33
94	VMware Software India Pvt. Ltd.	Pune	Software Product Development	15381.39	19378.27	24040.27	25242.28	26504.40	27829.62
95	NetTantra Technologies (India) Pvt. Ltd	Bhubaneswar	Embedded Software, Software Maintenance, Migration, Telecomm Software and Solutions	198.03	194.30	252.46	303.75	351.25	400.50
96	Keysight Technologies India Pvt Ltd.	Guwahati	Networking, 5G, Wave measurement	6459.00	7860.00	6212.00	7598.00	8358.00	9194.00
97	Alumnus Software Ltd.	Guwahati	Networking, Device Driver, OS porting	67.00	90.00	100.00	80.00	90.00	100.00
98	Nexval Infotech Pvt. Ltd.	Guwahati	Software Architecture	110.00	115.00	120.00	120.00	130.00	140.00
99	Nest innovative Solutions Pvt. Ltd.	Guwahati	Multi channel engagement in data technology	0.00	0.00	12.00	10.00	30.00	50.00
100	Ensim India Pvt. Ltd.	Guwahati	ITeS	2118.01	2587.10	5061.75	5000.00	5000.00	5000.00
101	Regal Services	Guwahati	Engineering Drawing	1064.00	1056.00	1442.00	700.00	800.00	900.00
102	Regal Cad Services Pvt. Ltd.	Guwahati	Engineering Drawing	730.00	887.00	1049.00	800.00	900.00	1000.00
103	Freebalance Software Solutions India Pvt. Ltd.	Guwahati	ERP	0.00	321.71	649.40	600.00	650.00	700.00
104	Gamut Infosystem Ltd.	Guwahati	Real Estate	199.00	322.00	214.00	245.00	255.00	270.00



105	NXP India Pvt. Ltd.	Noida	NXP is engaged into research and development of semiconductor chip for various applications. The activity includes chip design, testing of chip and development of embedded software on the chip	317.53	487.18	454.07	450.00	460.00	470.00
106	SAP Labs India Pvt Ltd.	Noida	Research and Development	260.56	322.33	326.97	359.66	392.36	425.06
107	Mentor Graphic5 India Pvt Ltd	Noida	Software Development Support Services (performing software coding, quality assurance, and testing with respect to preexisting and new software products features, functions and error corrections)	246.76	264.19	297.65	312.53	328.16	344.57
108	Atrenta (India) Pvt.Ltd.	Noida	R&D (Software Development)	58.81	80.10	94.80	118.50	148.12	185.16
109	Synopsys (India) Pvt.Ltd.	Noida	R&D (Software Development)	157.78	216.92	271.12	352.45	440.57	550.71
110	Synopsis (India) Pvt.Ltd. - II	Noida	R&D (Software Development)	40.18	48.56	54.82	61.40	76.75	95.94
111	Samsung India Electronics Pvt Ltd	Noida	Computer Software/ IT Enabled Services	1042.85	964.41	1154.64	1188.39	1283.47	1386.14
112	SAP Labs India Pvt Ltd.	Noida	Research and Development (Software Development)	260.56	322.33	326.97	359.66	392.36	425.06
113	Endoenergy Systems Pvt. Ltd.	Noida	Designing, developing and commercializing assistiveearable exoskeletons for supplementation of the aging society. Use of core Robotics Technology.	0.00	0.00	0.14	1.56	1.63	1.72