



***Market Statistics Service***

***2019 Annual Summary Report***

## Acknowledgment

*Our sincere thanks to the individuals who contribute to the creation of this report and to the many companies who provide invaluable data.*

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## ***Note:***

In calendar Q4, 2018, Synopsys is no longer including the Software Integrity Group revenue with Semiconductor IP. The supplemental information provided by Synopsys re-states total SIP revenue from calendar Q4, 2016 through Q3, 2018. The detailed product and regional revenues have not been re-stated. As a result, the sum of the product and regional SIP revenue for 2016 through 2018 will not agree with the revised reporting company total.

**CAE Worldwide Annual Revenue, 2015 - 2019**

CAE††	\$Millions					Growth Rates				
	Annual total					Year-to-Year				CAGR
	2015	2016	2017	2018	2019	16/15	17/16	18/17	19/18	19/15
<b>2.1 Electronic System Level (ESL) Design, Synthesis and Verification</b>	<b>272.0</b>	<b>286.9</b>	<b>309.2</b>	<b>304.6</b>	<b>309.5</b>	<b>5.5%</b>	<b>7.8%</b>	<b>-1.5%</b>	<b>1.6%</b>	<b>3.3%</b>
2.1.1 ESL Design	197.6	204.5	225.6	219.8	229.2	3.5%	10.3%	-2.6%	4.3%	3.8%
2.1.2 ESL Synthesis	19.6	27.2	27.8	30.1	38.2	39.3%	2.2%	8.2%	26.7%	18.2%
2.1.3 Verification and Virtual Prototyping	54.8	55.2	55.7	54.6	42.0	0.6%	1.0%	-2.0%	-23.0%	-6.4%
<b>2.2 Design Entry</b>	<b>64.9</b>	<b>71.0</b>	<b>73.6</b>	<b>76.8</b>	<b>87.6</b>	<b>9.5%</b>	<b>3.6%</b>	<b>4.4%</b>	<b>14.1%</b>	<b>7.8%</b>
<b>2.3 Logic Verification</b>	<b>912.1</b>	<b>966.5</b>	<b>1014.9</b>	<b>1110.5</b>	<b>1203.3</b>	<b>6.0%</b>	<b>5.0%</b>	<b>9.4%</b>	<b>8.4%</b>	<b>7.2%</b>
2.3.1 RTL Simulation	490.6	495.8	531.0	526.6	552.8	1.1%	7.1%	-0.8%	5.0%	3.0%
2.3.2 Dynamic Verification/Auxiliary RTL Simulation	54.7	58.5	66.3	n/a	n/a	7.0%	13.3%			
2.3.3 Hardware Assisted Verification	n/a	n/a	n/a	n/a	n/a					
2.3.4 Other Logic Verification & Simulation***	366.9	412.3	417.6	549.0	650.6	12.4%	1.3%	31.4%	18.5%	15.4%
<b>2.4 Analog &amp; Mixed Signal Simulators</b>	<b>312.7</b>	<b>333.4</b>	<b>370.3</b>	<b>410.6</b>	<b>443.1</b>	<b>6.6%</b>	<b>11.1%</b>	<b>10.9%</b>	<b>7.9%</b>	<b>9.1%</b>
2.4.1 Analog & Mixed Signal	193.7	196.9	225.2	247.6	255.1	1.6%	14.4%	9.9%	3.1%	7.1%
2.4.2 Library Characterization*	n/a	n/a	n/a	n/a	n/a					
2.4.3 RF Simulators	n/a	95.2	96.2	105.4	117.7		1.0%	9.6%	11.7%	
2.4.4 EM Solvers or Planar & 3D EM Solvers	n/a	n/a	n/a	n/a	n/a					
2.4.3 RF; 2.4.4 EM Solvers, or Planar & 3D EM Solvers	n/a	n/a	n/a	n/a	n/a					
2.4.2 Library Characterization; 2.4.4 EM Solvers, or Planar & 3D EM Solvers	37.9	41.3	49.0	57.6	70.3	8.9%	18.5%	17.7%	22.0%	16.7%

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**CAE Worldwide Annual Revenue, 2015 – 2019 (Continued)**

CAE‡‡	\$Millions					Growth Rates				
	Annual total					Year-to-Year				CAGR
	2015	2016	2017	2018	2019	16/15	17/16	18/17	19/18	19/15
<b>2.5 Formal Verification</b>	<b>159.6</b>	<b>175.3</b>	<b>189.0</b>	<b>192.6</b>	<b>202.8</b>	<b>9.8%</b>	<b>7.8%</b>	<b>1.9%</b>	<b>5.3%</b>	<b>6.2%</b>
2.5.1 Equivalency Checking	84.6	85.6	92.5	94.4	100.4	1.2%	8.1%	2.1%	6.4%	4.4%
2.5.2 Property Checking	75.0	89.7	96.5	98.1	102.3	19.6%	7.5%	1.7%	4.3%	8.1%
<b>2.6 Analysis</b>	<b>424.5</b>	<b>438.6</b>	<b>501.1</b>	<b>534.1</b>	<b>600.1</b>	<b>3.3%</b>	<b>14.2%</b>	<b>6.6%</b>	<b>12.4%</b>	<b>9.0%</b>
2.6.1 IC/ASIC Static Timing & Signal Integrity	97.1	n/a	110.4	119.6	122.822			8.4%	2.7%	6.0%
2.6.2 Power Analysis & Optimization	130.6	137.7	167.5	175.01	221.069	5.5%	21.6%	4.5%	26.3%	14.1%
2.6.3 IC/ASIC Transistor-Level Simulation & Analysis	127.5	128.3	143.6	155.6	163.8	0.6%	12.0%	8.4%	5.3%	6.5%
2.6.4 Analog & High frequency IC/ASIC Analysis	n/a	n/a	n/a	n/a	n/a					
2.6.5 Other IC/ASIC Related Analysis****	69.3	73.2	79.6	83.8	92.4	5.6%	8.7%	5.3%	10.2%	7.4%
2.6.4 Analog & High Frequency; 2.6.5 Other IC/ASIC-Related Analysis	n/a	n/a	n/a	n/a	n/a					
<b>2.7 Design for Test/Test Automation</b>	<b>125.5</b>	<b>131.0</b>	<b>144.3</b>	<b>157.0</b>	<b>147.5</b>	<b>4.4%</b>	<b>10.1%</b>	<b>8.8%</b>	<b>-6.0%</b>	<b>4.1%</b>
2.7.1 ATPG	91.2	95.0	98.7	113.6	99.9	4.1%	3.8%	15.2%	-12.1%	2.3%
2.7.2 BIST	n/a	n/a	n/a	n/a	n/a					
2.7.3 Scan	n/a	n/a	n/a	n/a	n/a					
2.7.2 BIST & 2.7.3 Scan	n/a	n/a	n/a	n/a	n/a					
2.7.4 Fault Simulation and Other Test	34.2	36.0	45.6	43.3	47.5	5.3%	26.6%	-5.0%	9.7%	8.6%
<b>2.8 Synthesis</b>	<b>251.6</b>	<b>255.3</b>	<b>281.9</b>	<b>296.5</b>	<b>317.3</b>	<b>1.4%</b>	<b>10.4%</b>	<b>5.2%</b>	<b>7.0%</b>	<b>6.0%</b>
<b>2.9 Other CAE Hardware &amp; Software</b>	<b>48.0</b>	<b>48.5</b>	<b>38.6</b>	<b>59.7</b>	<b>36.0</b>	<b>1.1%</b>	<b>-20.4%</b>	<b>54.7%</b>	<b>-39.8%</b>	<b>-6.9%</b>
<b>Total</b>	<b>2570.9</b>	<b>2706.6</b>	<b>2922.9</b>	<b>3142.3</b>	<b>3347.2</b>	<b>5.3%</b>	<b>8.0%</b>	<b>7.5%</b>	<b>6.5%</b>	<b>6.8%</b>

\*\*\* 2.3.4 now includes Static Verification. Beginning in Q1 2013, includes 2.3.3. For Q3 and Q4 2013, includes 2.3.2. For ‡‡ Q1 2017 revenue for CAE Categories 2.1 and 2.2 was re-stated in Q2, 2017. Q4 2017 revenue for category 2.3.4 was re-stated in Q1, 2018. Various categories were re-stated for Q3 2017 in Q2 2018.

**PCB & MCM Worldwide Annual Revenue, 2015– 2019**

	\$Millions					Growth Rates				
	Annual total					Year-to-Year				CAGR
	2015	2016	2017	2018	2019	16/15	17/16	18/17	19/18	19/15
<b>PCB/MCM Design</b>										
3.1 PCB Schematic Entry	53.1	55.4	56.4	63.2	74.8	4.3%	1.9%	12.1%	18.3%	9.0%
3.2 PCB Analysis	138.0	148.5	161.5	166.0	200.2	7.6%	8.8%	2.8%	20.6%	9.8%
3.3 IC Package Analysis‡	n/a	n/a	n/a	n/a	n/a					
3.6 PCB Physical Design	280.2	315.9	353.7	393.9	459.8	12.8%	11.9%	11.4%	16.7%	13.2%
3.7 IC Package Physical Design	23.5	23.7	27.9	32.3	34.4	1.0%	17.7%	15.8%	6.6%	10.1%
3.8 Other Physical Design; 3.9 Library & Design Data Management	100.4	131.2	143.2	165.4	169.6	30.7%	9.2%	15.5%	2.5%	14.0%
3.3 IC Package Analysis‡; 3.4 Other System Interconnect Analysis; 3.5 PCB Computer-Aided Manufacturing; 3.10 Other PCB & MCM Hardware & Software	49.4	56.8	53.2	52.0	65.3	14.9%	-6.3%	-2.3%	25.7%	7.2%
<b>Total</b>	<b>644.4</b>	<b>731.5</b>	<b>795.9</b>	<b>872.8</b>	<b>1004.2</b>	<b>13.5%</b>	<b>8.8%</b>	<b>9.7%</b>	<b>15.1%</b>	<b>11.7%</b>

## ***IC Physical Design & Verification Worldwide Annual Revenue, 2015 – 2019***

	<b>\$Millions</b>					<b>Growth Rates</b>				
	<b>Annual total</b>					<b>Year-to-Year</b>				<b>CAGR</b>
	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>16/15</b>	<b>17/16</b>	<b>18/17</b>	<b>19/18</b>	<b>19/15</b>
<b>IC Physical Design &amp; Verification</b>										
4.1 Physical Implementation	581.3	633.8	677.0	728.1	736.6	9.0%	6.8%	7.6%	1.2%	6.1%
4.2 IC Full Custom Layout	185.5	202.1	220.2	235.3	249.0	8.9%	8.9%	6.9%	5.8%	7.6%
4.3 IC Layout Verification	275.4	313.5	331.2	324.6	391.8	13.9%	5.7%	-2.0%	20.7%	9.2%
4.4 Parasitic Extraction	113.2	119.4	132.0	142.2	140.4	5.4%	10.6%	7.7%	-1.3%	5.5%
4.5 RET EDA (including OPC & PSM)	n/a	n/a	n/a	n/a	n/a					
4.5 RET EDA (including OPC & PSM) & 4.7 Mask Data Prep	274.4	286.2	285.9	257.7	310.3	4.3%	-0.1%	-9.8%	20.4%	3.1%
4.6 TCAD	93.9	104.6	110.1	121.5	127.1	11.4%	5.2%	10.3%	4.7%	7.9%
4.7 Mask Data Prep	n/a	n/a	n/a	n/a	n/a					
4.8 Yield Enhancement	53.2	51.7	65.2	72.7	109.9	-2.7%	26.1%	11.5%	51.1%	19.9%
4.9 Other Physical Design & Verification	14.3	16.3	16.6	18.1	16.3	14.3%	2.0%	9.0%	-10.0%	3.4%
<b>Total</b>	<b>1591.2</b>	<b>1727.6</b>	<b>1838.3</b>	<b>1900.3</b>	<b>2081.4</b>	<b>8.6%</b>	<b>6.4%</b>	<b>3.4%</b>	<b>9.5%</b>	<b>6.9%</b>

**Semiconductor Intellectual Property (SIP) Worldwide Annual Revenue, 2015 – 2019**

SIP†† ‡‡ †††	\$Millions					Growth Rates				
	Annual total					Year-to-Year				CAGR
	2015	2016	2017	2018	2019	16/15	17/16	18/17	19/18	19/15
<b>5.1 SIP-Related Tools &amp; 5.4 Embedded Software†</b>	<b>28.8</b>	<b>28.8</b>	<b>36.9</b>	<b>34.7</b>	<b>38.5</b>	<b>-0.1%</b>	<b>28.1%</b>	<b>-5.9%</b>	<b>10.8%</b>	<b>7.5%</b>
<b>5.2 Macrocells and Cores</b>	<b>741.9</b>	<b>839.3</b>	<b>1019.4</b>	<b>1225.9</b>	<b>1247.7</b>	<b>13.1%</b>	<b>21.5%</b>	<b>20.3%</b>	<b>1.8%</b>	<b>13.9%</b>
5.2.1 Logic Libraries/Standard Cells***	n/a	n/a	n/a	n/a	n/a					
5.2.2 Memory Elements****	161.0	185.6	252.5	286.1	288.5	15.3%	36.0%	13.3%	0.8%	15.7%
5.2.3 Analog & Mixed Signal	43.6	52.0	62.1	69.8	65.7	19.2%	19.4%	12.5%	-6.0%	10.8%
<b>5.2.4 Interface/Peripheral Cores</b>	<b>392.9</b>	<b>406.1</b>	<b>420.3</b>	<b>446.7</b>	<b>469.3</b>	<b>3.4%</b>	<b>3.5%</b>	<b>6.3%</b>	<b>5.1%</b>	<b>4.5%</b>
5.2.4.2 PCI Controllers	45.0	51.7	65.4	87.7	89.8	14.8%	26.5%	34.0%	2.4%	18.8%
5.2.4.3 USB Controllers	116.4	142.3	178.5	210.2	204.5	22.3%	25.5%	17.8%	-2.8%	15.1%
5.2.4.8 Ethernet Controller Cores	14.0	14.8	18.0	20.1	22.5	5.6%	21.6%	11.8%	12.1%	12.6%
5.2.4.14 DDR Controllers	n/a	n/a	n/a	n/a	n/a					
5.2.4.17 Other Interface/Peripherals	153.2	160.0	166.0	178.9	189.7	4.4%	3.8%	7.7%	6.1%	5.5%
5.2.4 Other †	64.2	66.0	68.0	70.0	70.8	2.7%	3.1%	3.0%	1.0%	2.5%
5.2.5 CODEC/Encryption	0.1	0.1	0.1	0.1	0.0	-27.7%	23.5%	0.0%	-70.2%	-28.2%
5.2.6 Graphics, Imaging & Audio	n/a	n/a	n/a	n/a	n/a					
5.2.7 Processors	46.7	46.8	46.9	43.1	45.6	0.4%	0.1%	-8.1%	5.8%	-0.6%
5.2.11 Other Macrocells & Cores*	97.7	91.1	89.9	87.5	86.7	-6.8%	-1.3%	-2.6%	-0.9%	-2.9%
<b>5.3 Verification SIP</b>	<b>124.9</b>	<b>124.2</b>	<b>124.3</b>	<b>129.1</b>	<b>130.7</b>	<b>-0.6%</b>	<b>0.1%</b>	<b>3.8%</b>	<b>1.3%</b>	<b>1.1%</b>
<b>SIP (Reporting Companies)</b>	<b>895.7</b>	<b>962.1</b>	<b>1050.4</b>	<b>1202.8</b>	<b>1449.4</b>	<b>7.4%</b>	<b>9.2%</b>	<b>14.5%</b>	<b>20.5%</b>	<b>12.8%</b>
<b>SIP (Non-Reporting Companies**)</b>	<b>437.9</b>	<b>451.0</b>	<b>466.8</b>	<b>495.8</b>	<b>521.0</b>	<b>3.0%</b>	<b>3.5%</b>	<b>6.2%</b>	<b>5.1%</b>	<b>4.4%</b>
<b>Total</b>	<b>1689.3</b>	<b>1935.1</b>	<b>2106.1</b>	<b>1929.7</b>	<b>1998.3</b>	<b>14.6%</b>	<b>8.8%</b>	<b>-8.4%</b>	<b>3.6%</b>	<b>4.3%</b>

‡ Includes 5.2.4.1, 5.2.4.4, 5.2.4.5, 5.2.4.6, 5.2.4.7, 5.2.4.9, 5.2.4.10, 5.2.4.11, 5.2.4.12, 5.2.4.13, 5.2.4.14, 5.2.4.15, and 5.2.4.16.

†† Beginning in January 2018, both GAAP and IFRS have changed accounting standards that impact revenue recognition requirements. In some cases, the impacts on individual company reporting has been substantial, particularly within those included in the Non-Reporting Semiconductor IP category.

\*\* Non-reporting SIP companies include ARM Holdings PLC (excl. ARM PIPD), CEVA Inc., and Rambus Inc. For Q3, 2016, ARM (excl. PIPD) is

‡‡ Q3 2017 revenue for various categories was re-stated in Q2 2018.

\*\* Non-reporting SIP companies include ARM Holdings PLC (excl. ARM PIPD), CEVA Inc., and Rambus Inc. For Q3, 2016, ARM (excl. PIPD) is

‡‡‡ Beginning in Q4 2018, Synopsys is no longer including SIG revenue with IP. See note on Page 3



## Worldwide EDA & SIP Annual Revenue, 2015 – 2019

	\$Millions					Growth Rates				
	Annual total					Year-to-Year				CAGR
	2015	2016	2017	2018	2019	16/15	17/16	18/17	19/18	19/15
<b>WorldWide†† ‡‡</b>										
<b>Total EDA License &amp; Maintenance</b>	<b>4806.5</b>	<b>5165.7</b>	<b>5557.1</b>	<b>5915.5</b>	<b>6432.8</b>	<b>7.5%</b>	<b>7.6%</b>	<b>6.4%</b>	<b>8.7%</b>	<b>7.6%</b>
CAE	2570.9	2706.6	2922.9	3142.3	3347.2	5.3%	8.0%	7.5%	6.5%	6.8%
PCB & MCM	644.4	731.5	795.9	872.8	1004.2	13.5%	8.8%	9.7%	15.1%	11.7%
IC Physical Design & Verification	1591.2	1727.6	1838.3	1900.3	2081.4	8.6%	6.4%	3.4%	9.5%	6.9%
<b>Total SIP Products, Tools &amp; Maintenance †††</b>	<b>2584.9</b>	<b>2897.2</b>	<b>3156.5</b>	<b>3132.5</b>	<b>3447.7</b>	<b>12.1%</b>	<b>8.9%</b>	<b>-0.8%</b>	<b>10.1%</b>	<b>7.5%</b>
Reporting Companies	895.7	962.1	1050.4	1202.8	1449.4	7.4%	9.2%	14.5%	20.5%	12.8%
Non-Reporting Companies*	1689.3	1935.1	2106.1	1929.7	1998.3	14.6%	8.8%	-8.4%	3.6%	4.3%
<b>Total Services</b>	<b>414.2</b>	<b>423.7</b>	<b>436.3</b>	<b>439.9</b>	<b>392.0</b>	<b>2.3%</b>	<b>3.0%</b>	<b>0.8%</b>	<b>-10.9%</b>	<b>-1.4%</b>
Consulting Services**	218.4	231.3	236.6	235.6	223.6	5.9%	2.3%	-0.4%	-5.1%	0.6%
Custom Development & Design Environments & PDM & CIS	26.6	26.2	19.1	11.8	18.4	-1.5%	-27.2%	-38.1%	56.2%	-8.8%
Training	28.3	29.7	33.7	40.4	30.7	5.1%	13.3%	20.0%	-24.1%	2.0%
Other	140.9	136.5	147.0	152.1	119.3	-3.1%	7.7%	3.5%	-21.6%	-4.1%
<b>Total EDA, SIP &amp; Services Revenue</b>	<b>7805.6</b>	<b>8486.6</b>	<b>9149.9</b>	<b>9487.9</b>	<b>10272.5</b>	<b>8.7%</b>	<b>7.8%</b>	<b>3.7%</b>	<b>8.3%</b>	<b>7.1%</b>

\* Non-reporting SIP companies include ARM Holdings PLC (excl. ARM PIPD), CEVA Inc., and Rambus Inc. For Q3, 2016, ARM (excl. PIPD) is estimated. Beginning with Q4, 2016, the ARM PIPD exclusion is estimated.

†† Q1 2017 revenue for CAE Categories 2.1 and 2.2 was re-stated in Q2, 2017. Q4 2017 revenue for 2.3.4 was re-stated in Q1 2018. Q3 2017 revenue for various categories was re-stated in Q2 2018.

††† Beginning in January 2018, both GAAP and IFRS have changed accounting standards that impact revenue recognition requirements. In some cases, the impacts on individual company reporting has been substantial, particularly within those included in the Non-Reporting Semiconductor IP category.

\*\*Custom Development & Design Environment & PDM & CIS is included in Other

††† Beginning in Q4 2018, Synopsys is no longer including SIG revenue with IP. See note on Page 3

	Annual (Peak number)					Growth Rates				
						Year-to-Year				CAGR
	2015	2016	2017	2018	2019	16/15	17/16	18/17	19/18	19/15
Employee Headcount**	34,169	36,412	39,964	42,790	45,416	6.6%	9.8%	7.1%	6.1%	7.4%

Employee Headcount\*\*

\*\* Includes non-reporting SIP companies

**Americas EDA & SIP Annual Revenue, 2015 – 2019**

	\$Millions					Growth Rates				
	Annual total					Year-to-Year				CAGR
	2015	2016	2017	2018	2019	16/15	17/16	18/17	19/18	19/15
<b>Americas †† ‡</b>										
<b>Total EDA License &amp; Maintenance</b>	<b>2256.4</b>	<b>2373.2</b>	<b>2540.8</b>	<b>2761.2</b>	<b>2804.9</b>	<b>5.2%</b>	<b>7.1%</b>	<b>8.7%</b>	<b>1.6%</b>	<b>5.6%</b>
CAE	1313.4	1351.9	1419.0	1525.4	1539.8	2.9%	5.0%	7.5%	0.9%	4.1%
PCB & MCM	234.2	252.0	305.1	325.8	331.7	7.6%	21.1%	6.8%	1.8%	9.1%
IC Physical Design & Verification	708.7	769.3	816.7	910.1	933.4	8.6%	6.2%	11.4%	2.6%	7.1%
<b>Total SIP Products, Tools &amp; Maintenance ‡‡</b>	<b>1096.5</b>	<b>1190.7</b>	<b>1439.2</b>	<b>1387.0</b>	<b>1468.5</b>	<b>8.6%</b>	<b>20.9%</b>	<b>-3.6%</b>	<b>5.9%</b>	<b>7.6%</b>
Reporting Companies	428.9	475.1	646.1	642.7	679.6	10.8%	36.0%	-0.5%	5.7%	12.2%
Non-Reporting Companies*	667.5	715.6	793.1	744.2	788.9	7.2%	10.8%	-6.2%	6.0%	4.3%
<b>Total Services</b>	<b>181.3</b>	<b>188.8</b>	<b>188.2</b>	<b>192.8</b>	<b>172.3</b>	<b>4.2%</b>	<b>-0.3%</b>	<b>2.5%</b>	<b>-10.6%</b>	<b>-1.3%</b>
Consulting Services**	116.5	116.5	107.1	95.9	98.8	0.0%	-8.1%	-10.4%	3.0%	-4.0%
Custom Development & Design Environments & PDM & CIS	8.9	5.8	2.6	0.7	0.7	-35.1%	-54.5%	-74.8%	-0.3%	-47.8%
Training	9.1	9.2	10.9	14.9	11.1	1.5%	18.2%	36.6%	-25.3%	5.2%
Other	46.8	57.4	67.6	81.4	61.7	22.5%	17.8%	20.4%	-24.1%	7.1%
<b>Total EDA, SIP &amp; Services Revenue</b>	<b>3534.1</b>	<b>3752.7</b>	<b>4168.2</b>	<b>4341.0</b>	<b>4445.7</b>	<b>6.2%</b>	<b>11.1%</b>	<b>4.1%</b>	<b>2.4%</b>	<b>5.9%</b>

\* Non-reporting SIP companies include ARM Holdings PLC (excl. ARM PIPD), CEVA Inc., and Rambus Inc. For Q3, 2016, ARM (excl. PIPD) is estimated. Beginning with Q4, 2016, the ARM PIPD exclusion is estimated.

‡‡ Q1 2017 revenue for CAE Categories 2.1 and 2.2 was re-stated in Q2, 2017. Q4 2017 revenue for 2.3.4 was re-stated in Q1 2018. Q3 2017 revenue for various categories was re-stated in Q2 2018.

†† Beginning in January 2018, both GAAP and IFRS have changed accounting standards that impact revenue recognition requirements. In some cases, the impacts on individual company reporting has been substantial, particularly within those included in the Non-Reporting Semiconductor IP category.

\*\*Custom Development & Design Environment & PDM & CIS is included in Other

‡‡‡ Beginning in Q4 2018, Synopsys is no longer including SIG revenue with IP.

**EMEA EDA & SIP Annual Revenue, 2015 – 2019**

	\$Millions					Growth Rates				
	Annual total					Year-to-Year				CAGR
	2015	2016	2017	2018	2019	16/15	17/16	18/17	19/18	19/15
<b>EMEA†† ‡‡</b>										
<b>Total EDA License &amp; Maintenance</b>	<b>831.9</b>	<b>873.2</b>	<b>909.9</b>	<b>921.9</b>	<b>1077.2</b>	<b>5.0%</b>	<b>4.2%</b>	<b>1.3%</b>	<b>16.8%</b>	<b>6.7%</b>
CAE	442.5	464.1	469.6	475.2	576.8	4.9%	1.2%	1.2%	21.4%	6.9%
PCB & MCM	164.7	207.2	197.7	206.1	260.7	25.8%	-4.6%	4.3%	26.5%	12.2%
IC Physical Design & Verification	224.8	201.9	242.6	240.6	239.6	-10.2%	20.1%	-0.8%	-0.4%	1.6%
<b>Total SIP Products, Tools &amp; Maintenance ‡‡‡</b>	<b>250.2</b>	<b>277.8</b>	<b>314.9</b>	<b>354.6</b>	<b>335.1</b>	<b>11.0%</b>	<b>13.4%</b>	<b>12.6%</b>	<b>-5.5%</b>	<b>7.6%</b>
Reporting Companies	113.2	142.9	164.8	205.0	182.7	26.3%	15.3%	24.4%	-10.9%	12.7%
Non-Reporting Companies*	137.0	134.9	150.1	149.6	152.4	-1.6%	11.3%	-0.4%	1.9%	2.7%
<b>Total Services</b>	<b>115.0</b>	<b>110.4</b>	<b>108.0</b>	<b>106.2</b>	<b>88.8</b>	<b>-4.0%</b>	<b>-2.2%</b>	<b>-1.7%</b>	<b>-16.4%</b>	<b>-6.3%</b>
Consulting Services**	57.5	66.8	68.7	69.7	60.9	16.1%	2.9%	1.5%	-12.7%	1.4%
Custom Development & Design Environments & PDM & CIS	1.2	1.3	1.5	0.8	1.5	6.3%	23.5%	-51.2%	104.8%	7.0%
Training	9.9	9.4	11.7	13.2	9.7	-4.8%	23.9%	13.1%	-26.4%	-0.5%
Other	46.3	32.9	26.0	22.5	16.6	-28.9%	-20.8%	-13.7%	-26.0%	-22.6%
<b>Total EDA, SIP &amp; Services Revenue</b>	<b>1197.1</b>	<b>1261.4</b>	<b>1332.8</b>	<b>1382.7</b>	<b>1501.0</b>	<b>5.4%</b>	<b>5.7%</b>	<b>3.7%</b>	<b>8.6%</b>	<b>5.8%</b>

\* Non-reporting SIP companies include ARM Holdings PLC (excl. ARM PIPD), CEVA Inc., and Rambus Inc. For Q3, 2016, ARM (excl. PIPD) is estimated. Beginning with Q4, 2016, the ARM PIPD exclusion is estimated.

‡‡ Q1 2017 revenue for CAE Categories 2.1 and 2.2 was re-stated in Q2, 2017. Q4 2017 revenue for 2.3.4 was re-stated in Q1 2018. Q3 2017 revenue for various categories was re-stated in Q2 2018.

†† Beginning in January 2018, both GAAP and IFRS have changed accounting standards that impact revenue recognition requirements. In some cases, the impacts on individual company reporting has been substantial, particularly within those included in the Non-Reporting Semiconductor IP category.

\*\*Custom Development & Design Environment & PDM & CIS is included in Other

‡‡‡ Beginning in Q4 2018, Synopsys is no longer including SIG revenue with IP.

## Japan EDA & SIP Annual Revenue, 2015 – 2019

	\$Millions					Growth Rates				
	Annual total					Year-to-Year				CAGR
	2015	2016	2017	2018	2019	16/15	17/16	18/17	19/18	19/15
<b>Japan†† ‡‡</b>										
<b>Total EDA License &amp; Maintenance</b>	<b>519.2</b>	<b>579.3</b>	<b>600.9</b>	<b>633.0</b>	<b>620.1</b>	<b>11.6%</b>	<b>3.7%</b>	<b>5.3%</b>	<b>-2.0%</b>	<b>4.5%</b>
CAE	273.4	295.9	316.8	326.1	304.7	8.2%	7.1%	3.0%	-6.6%	2.7%
PCB & MCM	103.5	123.0	141.9	161.6	168.0	18.8%	15.3%	13.9%	3.9%	12.9%
IC Physical Design & Verification	142.2	160.4	142.1	145.2	147.4	12.7%	-11.4%	2.2%	1.5%	0.9%
<b>Total SIP Products, Tools &amp; Maintenance ‡‡‡</b>	<b>217.2</b>	<b>252.6</b>	<b>256.4</b>	<b>271.3</b>	<b>221.6</b>	<b>16.3%</b>	<b>1.5%</b>	<b>5.8%</b>	<b>-18.3%</b>	<b>0.5%</b>
Reporting Companies	88.6	107.3	110.2	120.5	84.1	21.0%	2.7%	9.3%	-30.2%	-1.3%
Non-Reporting Companies*	128.6	145.3	146.3	150.9	137.5	13.0%	0.7%	3.1%	-8.9%	1.7%
<b>Total Services</b>	<b>49.7</b>	<b>54.8</b>	<b>55.1</b>	<b>56.1</b>	<b>54.4</b>	<b>10.2%</b>	<b>0.6%</b>	<b>1.9%</b>	<b>-3.1%</b>	<b>2.3%</b>
Consulting Services**	15.7	17.6	19.3	20.5	19.9	12.4%	9.3%	6.6%	-3.0%	6.2%
Custom Development & Design Environments & PDM & CIS	16.5	18.9	14.6	10.3	16.2	14.9%	-23.0%	-29.2%	56.8%	-0.4%
Training	3.7	5.7	4.9	4.8	3.0	54.1%	-15.2%	-2.2%	-37.6%	-5.5%
Other	14.4	12.5	16.4	20.6	15.4	-13.2%	31.1%	25.4%	-25.2%	1.6%
<b>Total EDA, SIP &amp; Services Revenue</b>	<b>786.2</b>	<b>886.7</b>	<b>912.4</b>	<b>960.4</b>	<b>896.1</b>	<b>12.8%</b>	<b>2.9%</b>	<b>5.3%</b>	<b>-6.7%</b>	<b>3.3%</b>

\* Non-reporting SIP companies include ARM Holdings PLC (excl. ARM PIPD), CEVA Inc., and Rambus Inc. For Q3, 2016, ARM (excl. PIPD) is estimated. Beginning with Q4, 2016, the ARM PIPD exclusion is estimated.

†† Q1 2017 revenue for CAE Categories 2.1 and 2.2 was re-stated in Q2, 2017. Q4 2017 revenue for 2.3.4 was re-stated in Q1 2018. Q3 2017 revenue for various categories was re-stated in Q2 2018.

††† Beginning in January 2018, both GAAP and IFRS have changed accounting standards that impact revenue recognition requirements. In some cases, the impacts on individual company reporting has been substantial, particularly within those included in the Non-Reporting Semiconductor IP category.

\*\*Custom Development & Design Environment & PDM & CIS is included in Other

†††† Beginning in Q4 2018, Synopsys is no longer including SIG revenue with IP.

**APAC EDA & SIP Annual Revenue, 2015 – 2019**

	\$Millions					Growth Rates				
	Annual total					Year-to-Year				CAGR
	2015	2016	2017	2018	2019	16/15	17/16	18/17	19/18	19/15
<b>APAC†† ‡‡</b>										
<b>Total EDA License &amp; Maintenance</b>	<b>1198.9</b>	<b>1339.9</b>	<b>1505.5</b>	<b>1599.4</b>	<b>1930.6</b>	<b>11.8%</b>	<b>12.4%</b>	<b>6.2%</b>	<b>20.7%</b>	<b>12.6%</b>
CAE	541.5	594.7	717.5	815.6	925.8	9.8%	20.7%	13.7%	13.5%	14.3%
PCB & MCM	142.0	149.2	151.2	179.3	243.9	5.1%	1.3%	18.6%	36.0%	14.5%
IC Physical Design & Verification	515.4	596.0	636.9	604.4	760.9	15.6%	6.9%	-5.1%	25.9%	10.2%
<b>Total SIP Products, Tools &amp; Maintenance ‡‡‡</b>	<b>1021.0</b>	<b>1212.8</b>	<b>1347.0</b>	<b>1336.0</b>	<b>1422.6</b>	<b>18.8%</b>	<b>11.1%</b>	<b>-0.8%</b>	<b>6.5%</b>	<b>8.6%</b>
Reporting Companies	264.9	273.5	330.4	450.9	503.0	3.2%	20.8%	36.5%	11.6%	17.4%
Non-Reporting Companies*	756.1	939.4	1016.6	885.1	919.5	24.2%	8.2%	-12.9%	3.9%	5.0%
<b>Total Services</b>	<b>67.7</b>	<b>69.8</b>	<b>85.1</b>	<b>84.8</b>	<b>76.5</b>	<b>3.1%</b>	<b>22.0%</b>	<b>-0.4%</b>	<b>-9.8%</b>	<b>3.1%</b>
Design Services Consulting	28.7	30.4	41.6	49.5	44.0	6.1%	36.7%	19.0%	-11.0%	11.3%
Custom Development & Design Environments & PDM & CIS	0.1	0.3	0.3	0.1	0.1	153.0%	13.5%	-78.9%	-15.5%	-15.4%
Training	5.6	5.3	6.2	7.5	6.8	-4.4%	16.8%	21.3%	-9.2%	5.3%
Other	33.4	33.7	37.0	27.7	25.6	1.2%	9.7%	-25.0%	-7.9%	-6.4%
<b>Total EDA, SIP &amp; Services Revenue</b>	<b>2287.6</b>	<b>2622.5</b>	<b>2937.6</b>	<b>3020.2</b>	<b>3429.7</b>	<b>14.6%</b>	<b>12.0%</b>	<b>2.8%</b>	<b>13.6%</b>	<b>10.7%</b>

\* Non-reporting SIP companies include ARM Holdings PLC (excl. ARM PIPD), CEVA Inc., and Rambus Inc. For Q3, 2016, ARM (excl. PIPD) is estimated. Beginning with Q4, 2016, the ARM PIPD exclusion is estimated.

†† Q1 2017 revenue for CAE Categories 2.1 and 2.2 was re-stated in Q2, 2017. Q4 2017 revenue for 2.3.4 was re-stated in Q1 2018. Q3 2017 revenue for various categories was re-stated in Q2 2018.

††† Beginning in January 2018, both GAAP and IFRS have changed accounting standards that impact revenue recognition requirements. In some cases, the impacts on individual company reporting has been substantial, particularly within those included in the Non-Reporting Semiconductor IP category.

\*\*Custom Development & Design Environment & PDM & CIS is included in Other

‡‡‡ Beginning in Q4 2018, Synopsys is no longer including SIG revenue with IP.