

Table SINV-11

## International patent families granted in computer technology, by region, country, or economy: 1998–2020

(Number)

Region, country, or economy	Economy by income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
World	na	17,156	19,424	16,781	17,273	17,697	20,349	22,649	22,037	29,143	29,282	30,644	33,494	38,290	43,158	51,153	53,712	56,891	56,450	64,552	70,481	70,439	82,149	95,834
North America	na	6,174	6,413	6,110	6,368	6,475	7,463	8,110	7,196	10,300	9,161	10,033	11,517	14,394	13,857	16,590	17,541	18,973	17,244	16,983	15,315	13,827	17,018	17,216
Canada	High	115	114	139	144	163	188	219	202	305	324	421	486	670	648	796	833	963	810	814	680	624	695	675
Mexico	Upper middle	0	1	1	2	0	4	5	6	2	2	2	2	6	6	8	3	7	9	23	22	25	21	19
United States	High	6,059	6,297	5,970	6,222	6,312	7,271	7,886	6,987	9,993	8,834	9,610	11,029	13,718	13,203	15,785	16,706	18,002	16,425	16,146	14,613	13,178	16,302	16,523
Central America and Caribbean	na	2	0	1	0	0	2	1	1	0	2	2	3	2	1	3	2	3	4	8	5	4	6	16
Puerto Rico	High	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South America	na	4	5	3	4	4	8	10	8	9	11	10	13	12	24	24	31	32	47	46	49	61	77	124
Argentina	Upper middle	1	0	0	1	1	1	1	0	2	2	1	1	2	5	5	7	5	11	11	3	6	10	12
Brazil	Upper middle	3	5	3	2	2	5	6	5	4	6	7	10	9	16	14	22	23	30	33	42	48	61	107
Europe	na	1,320	1,449	1,452	1,743	1,874	2,510	2,618	2,474	2,634	2,520	2,703	2,895	3,392	3,455	3,957	4,192	4,628	4,690	4,924	5,114	5,108	5,584	5,505
EU-27 + UK <sup>a</sup>	na	1,098	1,252	1,285	1,556	1,659	2,212	2,281	2,165	2,336	2,161	2,350	2,514	2,975	2,928	3,345	3,642	3,954	3,937	4,155	4,165	4,191	4,596	4,582
United Kingdom	High	203	210	207	228	312	445	443	497	413	337	386	447	513	544	638	714	815	852	916	821	815	958	981
EU-27 <sup>b</sup>	na	895	1,043	1,078	1,327	1,347	1,767	1,838	1,668	1,923	1,824	1,964	2,068	2,462	2,384	2,707	2,928	3,139	3,085	3,239	3,345	3,375	3,638	3,601
Austria	High	11	14	17	18	20	25	22	27	49	38	54	42	49	53	45	45	53	65	63	77	71	74	80
Belgium	High	18	12	14	15	14	18	24	18	28	26	35	42	45	45	61	69	57	58	72	74	95	96	75
Denmark	High	3	7	9	11	13	17	16	14	22	18	19	26	30	35	37	37	37	35	39	43	40	45	31
Finland	High	18	30	32	30	33	66	92	88	102	99	125	123	148	111	132	151	186	176	196	178	141	156	152
France	High	221	270	262	418	322	525	451	439	502	437	450	489	522	569	699	779	756	754	840	842	898	846	822
Germany	High	352	363	373	448	583	689	750	718	865	839	880	869	1,088	975	1,060	1,110	1,188	1,128	1,126	1,091	1,132	1,355	1,331
Hungary	High	0	3	5	3	4	4	3	3	4	4	3	7	8	14	9	10	13	14	10	13	15	17	20
Ireland	High	16	24	20	18	19	26	14	20	22	20	18	31	33	42	60	73	76	91	77	78	102	153	178
Italy	High	125	152	162	114	118	105	181	104	76	75	89	85	115	109	132	149	144	109	109	239	207	197	202
Netherlands	High	61	76	80	97	93	127	126	102	115	118	115	123	131	132	130	142	161	155	150	166	167	176	178
Spain	High	22	24	26	25	10	29	26	34	42	36	48	59	69	73	92	106	116	117	117	93	101	92	75
Sweden	High	36	53	58	99	98	103	98	77	67	79	77	89	119	125	142	137	176	203	209	215	165	174	204
Other Europe	na	222	197	168	187	215	298	338	309	298	358	353	380	417	527	612	550	675	753	769	949	918	988	923
Other Europe-2020 <sup>b</sup>	na	425	407	374	416	527	743	780	806	711	695	739	827	930	1,071	1,250	1,265	1,490	1,605	1,685	1,770	1,733	1,946	1,904

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Belarus	Upper middle	1	0	1	2	0	3	0	0	1	3	2	1	1	2	1	2	2	2	6	6	6	10	5
Moldova	Lower middle	1	1	0	2	1	2	2	3	1	1	2	3	8	4	4	4	2	2	1	4	0	0	0
Norway	High	10	11	10	14	17	19	14	17	14	22	32	34	37	44	39	34	41	46	52	57	56	47	60
Russia	Upper middle	182	159	138	121	151	190	164	218	214	247	227	217	257	347	386	298	384	453	459	633	606	659	601
Switzerland	High	23	21	16	43	42	48	55	45	56	52	62	82	71	84	123	156	182	175	180	179	181	213	197
Ukraine	Lower middle	5	2	2	3	2	34	100	23	9	27	23	38	36	34	37	37	49	51	44	41	35	28	19
Asia	na	9,470	11,314	8,955	8,815	8,872	9,657	11,072	11,792	15,633	17,100	17,394	18,575	19,901	25,201	29,720	30,960	32,172	33,307	41,427	48,875	50,368	58,191	71,654
China	Upper middle	35	75	156	221	290	664	1,061	1,135	1,526	2,236	3,434	4,502	4,616	6,133	8,936	8,742	8,429	12,473	19,842	28,599	31,939	38,542	51,306
India	Lower middle	4	7	10	17	16	44	48	62	109	147	190	223	395	491	641	908	1,095	1,161	1,157	1,188	1,214	1,573	1,797
Japan	High	7,887	8,037	6,657	6,329	6,035	6,137	6,579	6,304	7,430	8,350	8,797	9,610	10,358	12,650	13,371	13,289	12,932	9,865	10,796	9,955	8,955	8,901	8,689
Malaysia	Upper middle	2	1	1	1	1	6	15	25	23	27	22	30	33	31	53	69	80	65	90	80	69	53	42
Singapore	High	15	21	20	22	33	41	43	30	44	35	50	48	37	51	73	67	84	80	95	91	93	121	126
South Korea	High	1,198	2,809	1,669	1,521	1,702	1,806	2,125	3,030	4,896	4,822	3,796	2,933	3,060	4,312	4,560	5,185	6,231	6,022	6,222	6,291	5,971	6,761	7,647
Taiwan	High	329	362	441	704	792	958	1,200	1,206	1,604	1,479	1,103	1,224	1,393	1,519	2,064	2,676	3,300	3,616	3,186	2,630	2,089	2,204	2,020
Middle East	na	93	88	103	98	120	185	180	137	184	169	202	247	310	380	590	695	783	873	869	889	831	1,002	1,023
Israel	High	92	85	102	97	115	182	178	136	179	168	196	240	297	367	560	650	743	830	813	834	784	944	952
Africa	na	15	23	22	19	40	36	39	45	37	27	48	31	30	21	43	42	46	30	37	33	27	49	32
South Africa	Upper middle	15	21	20	16	33	31	32	43	34	22	45	28	27	10	27	23	19	17	22	21	10	30	19
Australia and Oceania	na	69	105	113	224	311	488	607	352	337	288	249	213	249	215	223	245	251	251	251	199	210	221	262
Australia	High	64	99	106	219	303	475	597	345	320	270	232	197	229	195	196	219	223	223	224	184	194	204	242
New Zealand	High	5	6	7	5	8	13	9	7	17	17	17	16	19	20	26	26	27	28	26	15	15	17	19
Unclassified	na	8	26	22	2	0	0	11	32	10	4	4	2	1	4	3	3	3	4	6	2	4	1	1

na = not applicable, metric not calculated at this level.

EU = European Union; UK = United Kingdom.

<sup>a</sup> The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

<sup>b</sup> Beginning in 2020, the United Kingdom was no longer a member of the EU.

**Note(s):**

International Patent Documentation (INPADOC) patent families across all patent offices covered in the Worldwide Patent Statistical Database (PATSTAT) are counted according to the year of the first granted patent in the patent family. Patent families are allocated according to patent inventorship information found on the priority patent of the INPADOC patent families. To account for missing ownership information in PATSTAT for some offices, a method designed by de Rassenfosse et al. (2013) is used to fill missing information on priority patents using information in successive filings within the families. Priority patents not indexed in PATSTAT are replaced by the next utility patent(s) in the families according to filing dates. Patent families are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Patents are classified under the World Intellectual Property Organization (WIPO) classification of patents, which classifies International Patent Classification (IPC) codes under 35 technical fields. IPC reformed codes take into account changes that were made to the WIPO classification in 2006 under the eighth version of the classification and were used to prepare these data. China includes Hong Kong. Data were extracted in June 2021. Because of data coverage issues for some patent offices in PATSTAT, statistics for some countries may be underestimated partially for some years or across the whole trend. Countries with identified issues include India (missing data) and South Africa (no data for 2018). For Italy, because of data gaps regarding information on granted patents, patent applications are used instead, which slightly overestimates Italy's output and creates a small shift in year for which its output is accounted. As patent authorities become more involved with the European Patent Organisation, these gaps should disappear in the future, strengthening the robustness of statistics for these countries.

**Source(s):**

National Center for Science and Engineering Statistics; Science-Metrix; PATSTAT, accessed October 2021.

*Science and Engineering Indicators*