

### [ Comparison of Technical Fields of Invention Patent Applications in Taiwan and WIPO ]

Invention patents in the intellectual property system are extremely important to encourage scientific and technological research and innovation. Furthermore, the technical fields of invention patents often show the current and future development trends of the global industry. The following tables are based on the 2021 invention patents of Taiwan and the World Intellectual Property Organization (WIPO) published by the Taiwan Intellectual Property Office (TIPO). Taiwan is not a member of WIPO and cannot directly apply for a PCT international patent by the Patent Cooperation Treaty under WIPO. However, Taiwan patent laws and regulations are in line with international standards, and foreign applicants can apply for a patent and claim priority within 12 months after the PCT case is filed. Since Taiwan's semiconductor technology is also an important industry for the world and drives the development of other industries, the patent layouts in Taiwan and the advanced countries can be used as a reference for applicants.

The technical fields of Taiwan and WIPO's invention patent applications in 2021

Taiwan (TIPO published cases)					WIPO (PCT Published Cases)				
Ranking	Technical field	Number of cases	Percentage	Growth rate	Ranking	Technical field	Number of cases	Percentage	Growth rate
1	Semiconductor	6,360	12.9%	19.6%	1	Computing technology	26,092	9.9%	7.2%
2	Computing technology	4,283	8.7%	-1.4%	2	Digital communication	23,603	9.0%	6.9%
3	Electro-mechanical energy devices	3,135	6.4%	5.1%	3	Medical technology	18,552	7.1%	6.0%
4	Optics	2,566	5.2%	-3.1%	4	Electro-mechanical energy devices	18,224	6.9%	4.9%
5	Audiovisual technology	2,243	4.6%	1.4%	5	Measurements	12,152	4.6%	-4.3%
6	Surface treatment	2,002	4.1%	5.9%	6	Pharmaceutical Drugs	12,147	4.6%	12.8%
7	Measurements	1,956	4.0%	5.9%	7	Audiovisual technology	10,837	4.1%	-6.0%
8	Polymer chemistry	1,875	3.8%	-1.1%	8	Transport	10,110	3.8%	-10.5%
9	Organic precision chemistry	1,692	3.4%	-1.6%	9	Biotechnology	8,745	3.3%	9.5%
10	Pharmaceutical Drugs	1,616	3.3%	26.3%	10	Semiconductor	8,346	3.2%	-5.8%
11	Medical technology	1,585	3.2%	-0.1%	11	Optics	7,919	3.0%	-5.4%
12	Basic materials chemistry	1,578	3.2%	-7.2%	12	Other special machinery	7,232	2.7%	-3.4%
13	Digital communication	1,426	2.9%	-2.5%	13	Telecommunications	6,371	2.4%	-1.1%
14	Biotechnology	1,362	2.8%	19.1%	14	Civil engineering	6,317	2.4%	-2.8%
15	Other special machinery	1,249	2.5%	2.0%	15	Mechanical operation handling	6,256	2.4%	-2.4%

Source: TIPO

### UNION PATENT SERVICE CENTER

#### TAIPEI OFFICE

11th F., 346 Nanking E. Road, Sec. 3, Taipei 105, TAIWAN  
 TEL : (886-2) 2721-1306  
 FAX : (886-2) 2752-1800 ; 2711-5984  
 E-mail : upsc@unionpatent.com.tw  
 URL : www.unionpatent.com.tw

#### TOKYO OFFICE

9th Floor 1-28-1-901 Higashi-Ikebukuro, Toshima-ku, Tokyo  
 TEL : 03-3988-7421  
 FAX : 03-3988-3491 ; 03-3988-7424  
 E-mail : upsc@unionpatent.co.jp  
 URL : www.unionpatent.co.jp

#### HONG KONG OFFICE

Units E-F, 20th Floor, Neich Tower, 128 Gloucester Road, Hong Kong  
 TEL : (852)2511-1348  
 FAX : (852)2511-6737 ; 2507-4697  
 E-mail : upsc@unionpatent.com.hk  
 URL : www.unionpatent.com.hk

## Top three technical fields and percentages of invention patent applications between Taiwan and WIPO in 2021

Applicant's Nationality	TIPO	WIPO
Taiwan	Semiconductors 14.5% Computing technology 12.3% Electro-mechanical energy equipment 7.1%	-
United States	Semiconductors 12.0% Computing technology 8.4% Digital communications 7.1%	Computing technology 12.4% Medical technology 10.8% Digital communication 9.7%
Japan	Semiconductors 14.1% Polymer chemistry 9.9% Surface treatment 7.5%	Electro-mechanical energy installations 10.9% Computing technology 7.1% Measurements 5.7%
China	Computing technology 13.9% Organic chemistry 9.0% Audiovisual technology 8.8%	Computing technology 15.6% Digital communications 15.2% Audiovisual technology 7.0%
South Korea	Semiconductors 18.3% Computing technology 10.3% Information management 6.3%	Digital communications 11.5% Electro-mechanical energy installations 9.3% Computing technology 8.7%
Germany	Organic chemistry 11.6% Basic materials chemistry 10.2% Optics 5.9%	Electro-mechanical energy installations 10.3% Transport 9.6% Measurements 6.3%

Source: TIPO

## 2021 Taiwan major patent applicants and their number of invention patent applications (with growth rates) in top five technical fields.

Semiconductor			Computing technology			Electro-mechanical energy devices			Optics			Audiovisual technology		
1	TSMC	1412 (74.5%)	1	TSMC	191 (75.2%)	1	Applied Materials	66 (15.8%)	1	ASML Netherlands	126 (-19.2%)	1	AUO Corp	135 (-18.7%)
2	Tokyo Electron	290 (2.5%)	2	Kioxia	150 (12.8%)	2	ASML Netherlands	65 (71.1%)	2	TSMC	114 (100.0%)	2	Qualcomm	116 (0%)
3	Applied materials	243 (10.5%)	3	Acer	136 (18.3%)	3	Delta Electronics	62 (24.0%)	3	Nitto Denko	101 (24.7%)	3	Inventec	83 (1.2%)
4	Kioxia	234 (33.0%)	4	Qualcomm	134 (100.0%)	4	Darfron Electronics	46 (100.0%)	4	AU Optronics	89 (-15.2%)	4	Acer	45 (4.7%)
5	Nanya Technology	228 (119.2%)	5	Samsung Electronics	123 (41.4%)	5	Nitto Denko	43 (30.3%)	5	Cannon	60 (-6.3%)	5	LG Display	39 (25.8%)
6	Samsung Electronics	226 (218.3%)	6	Realtek Semiconductor	110 (-9.1%)	6	AMEC	40 (-16.7%)	6	Largon Precision	53 (29.3%)	5	Guangdong OPPO	39 -
7	Disco	142 (-10.7%)	7	Silicon Motion	71 (-25.3%)	7	LG Energy	37 -	7	Applied Materials	52 (18.2%)	5	Realtek Semiconductor	39 (18.2%)
8	AUO Corp	105 (61.5%)	8	Macronix	64 (18.5%)	8	Foxconn Interconnect Tech	36 (-37.9%)	8	Shin-Etsu Chemical	49 (16.7%)	8	Compal Electronics	36 (-5.3%)
9	Screen	101 (11.0%)	9	Intel	64 (1.6%)	9	Dongguan Luxshare	32 (-30.4%)	9	Samsung Electro-Machanics	44 (109.5%)	9	Fraunhofer-Gesekkschaft	33 (10.0%)
10	Qualcomm	87 (278.3%)	10	Nuroton Technology	60 (39.5%)	9	Molex Incorporated	32 (23.1%)	10	Carl Zeiss SMT	41 (24.2%)	10	Sony Semiconductor	31 (-8.8%)
						9	Primax Electronics	32 (23.1%)				10	Cloud Network Technology	31 (19.2%)
						9	Lam Research	32 (45.5%)						

Source: TIPO

## UNION PATENT SERVICE CENTER

## TAIPEI OFFICE

 11th F., 346 Nanking E. Road, Sec. 3, Taipei 105, TAIWAN  
 TEL : (886-2) 2721-1306  
 FAX : (886-2) 2752-1800 ; 2711-5984  
 E-mail : upsc@unionpatent.com.tw  
 URL : www.unionpatent.com.tw

## TOKYO OFFICE

 9th Floor 1-28-1-901 Higashi-Ikebukuro, Toshima-ku, Tokyo  
 TEL : 03-3988-7421  
 FAX : 03-3988-3491 ; 03-3988-7424  
 E-mail : upsc@unionpatent.co.jp  
 URL : www.unionpatent.co.jp

## HONG KONG OFFICE

 Units E-F, 20th Floor, Neich Tower, 128 Gloucester Road, Hong Kong  
 TEL : (852)2511-1348  
 FAX : (852)2511-6737 ; 2507-4697  
 E-mail : upsc@unionpatent.com.hk  
 URL : www.unionpatent.com.hk

2021 WIPO major applicants of invention patent applications with their main technical fields and proportion

Ranking	Applicant	Technical field and proportion	Ranking	Applicant	Technical field and proportion
1	Huawei	Digital Communications 46.9% Computing Technology 20.0% Telecom 8.8%	6	Guangdong OPPO	Digital Communications 51.9% Computing Technology 16.8% Audiovisual technology 10.8%
2	Qualcomm	Digital Communications 75.0% Telecommunications 10.6% Audiovisual technology 4.5%	7	BOE Technology Group	Semiconductors 31.2% Audiovisual technology 22.9% Computing Technology 17.3%
3	Samsung Electronics	Digital Communications 29.8% Computing Technology 21.9% Telecommunications 12.8%	8	LM Ericsson	Digital Communications 69.4% Telecommunications 13.3% Computing Technology 8.8%
4	LG Electronics	Digital Communications 32.1% Audiovisual technology 15.6% Telecom 10.7%	9	Sony	Computing Technology 22.8% Digital communication 18.6% Audiovisual technology 18.4%
5	Mitsubishi Electric	Heat treatment and equ 18.1% Electro-mechanical installations 17.8% Computing Technology 9.5%	10	Panasonic Intellectual Property Management	Electro-mechanical energy equ 28.4% Measured 7.4% Audiovisual technology 7.1%

Source: TIPO

The number of invention patent applications (and growth rates) filed in Taiwan and WIPO relating to pharmaceutical technologies in the past three years

Year	TIPO			WIPO		
	Pharmaceutical Drugs	Biotechnology	Medical Technology	Pharmaceutical Drugs	Biotechnology	Medical Technology
2019	1,333 (8.0%)	960 (16.8%)	1,371 (1.1%)	9,785 (7.2%)	7,404 (11.5%)	16,916 (7.1%)
2020	1,280 (-4.0%)	1,144 (19.2%)	1,587 (15.8%)	10,767 (10.0%)	7,985 (7.8%)	17,500 (3.5%)
2021	1,616 (26.3%)	1,362 (19.1%)	1,585 (-0.1%)	12,147 (12.8%)	8,745 (9.5%)	18,552 (6.0%)

Source: TIPO

Number of invention patent applications (and growth rates) filed in Taiwan and WIPO from 2019 to 2022

	2019	2020	2021	2022
TIPO	48,268 (+1.8%)	46,664 (-3.3%)	49,116 (+5.3%)	50,242 (+2.3%)
WIPO	265,383 (+5.0%)	274,889 (+3.6%)	277,500 (+0.9%)	278,100 (+0.3%)

Source: TIPO and WIPO

※

UNION PATENT SERVICE CENTER

TAIPEI OFFICE

11th F., 346 Nanking E. Road, Sec. 3, Taipei 105, TAIWAN  
TEL : (886-2) 2721-1306  
FAX : (886-2) 2752-1800 ; 2711-5984  
E-mail : upsc@unionpatent.com.tw  
URL : www.unionpatent.com.tw

TOKYO OFFICE

9th Floor 1-28-1-901 Higashi-Ikebukuro, Toshima-ku, Tokyo  
TEL : 03-3988-7421  
FAX : 03-3988-3491 ; 03-3988-7424  
E-mail : upsc@unionpatent.co.jp  
URL : www.unionpatent.co.jp

HONG KONG OFFICE

Units E-F, 20th Floor, Neich Tower, 128 Gloucester Road, Hong Kong  
TEL : (852)2511-1348  
FAX : (852)2511-6737 ; 2507-4697  
E-mail : upsc@unionpatent.com.hk  
URL : www.unionpatent.com.hk