

# Apple

## *Patent Acquisition Analysis and Trends*

*June 2019*

## Introduction

For this report, we have analyzed the inorganic portion of Apple's portfolio, focusing on 9630 currently active patent applications that Apple has acquired via company acquisitions or asset purchases, out of a total of 46,192 active published applications it currently owns. Unless otherwise stated, the report displays numbers for published patent applications that are currently in force. The analytics are presented in the various charts and tables that follow. These include the following,

- Apple - Portfolio Summary
- Publication Year Spread – Organic Vs Acquired Portfolio Segments
- Key Geographies of Acquired Portfolio Segment
- Key Contributors to the Acquired Patents
- Acquired Portfolio Segment - Top CPC Codes
- Select Key Patents in the Acquired Portfolio Segment
- High Quality Acquired Patents - Sub-technologies
- Organic Vs Acquire Portfolio Segments - Technology Distribution

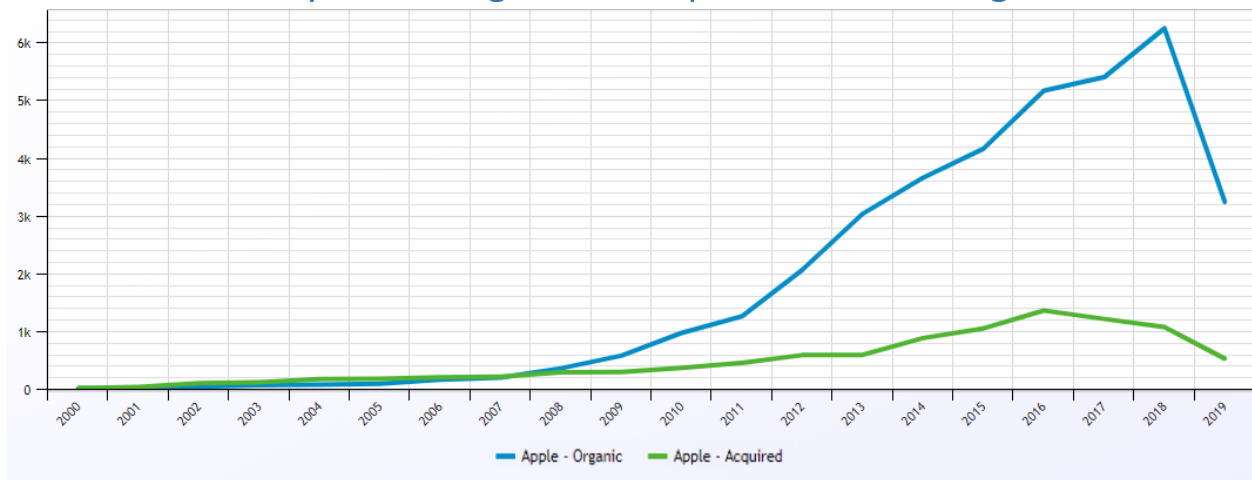
## Insights

- A little over 20% of Apple's patent portfolio comprises of acquired patent applications.
- Apple's acquired patent assets significantly enhance its coverage in the Asian jurisdictions of China, Korea and Japan.
- The average Relecura Star Rating of Apple's organic patent portfolio is 2.65 out of 5, which is better than the average Star Rating of the acquired patents (2.25 out of 5). Typically, a patent with a Relecura Star rating of 3 or more out of 5 is deemed to be one of high-quality.
- Apple's most significant acquisition in terms of total patent applications is from Nortel (836 active patent applications).

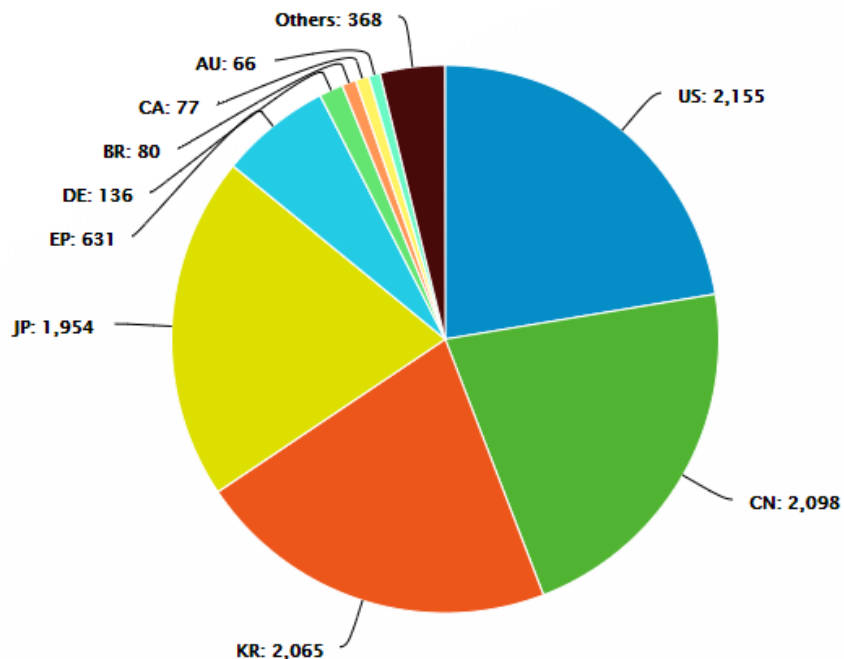
## Apple - Portfolio Summary

Apple Portfolio Segments	# Applications	Key Jurisdictions	Average Star Rating
Overall portfolio	46192	US (25361), CN (4822), EP (3811), KR (2366), JP (2229)	2.57
Organic portfolio	36718	US (23207), EP (3323), CN (2724), AU (1736), TW (1653), KR (301), JP (277)	2.65
Acquired portfolio	9630	US (2155), CN (2098), KR (2065), JP (1954)	2.25

## Publication Year Spread – Organic Vs Acquired Portfolio Segments



## Key Geographies of Acquired Portfolio Segment



## Key Contributors to the Acquired Patents

Key Contributors	# Applications	Transfer Type	Technologies Transferred
NORTEL	836	Asset Purchase	Data Transmission, Wireless Communication Networks, Signal Transmission, Multiplex Communication, Communication Switches & Relays, Telephonic Communication, Electric Elements - Aerials
KODAK	173	Asset Purchase	Pictorial Communication, Image Data Processing, Photography - Camera, Digital Data Processing, Data Presentation
METAIO	153	Company Acquisition	Image Data Processing, Digital Data Processing, Data Presentation, Pictorial Communication
POWERBYPROXI	150	Company Acquisition	Power Supply & Distribution Circuits, Electric Elements - Magnetic Materials, Signal Transmission, Electric Power Converters
INVISAGE TECHNOLOGIES	136	Company Acquisition	Electric Elements - Semiconductor Devices, Pictorial Communication, Greentech - Reduction & Transmission of Greenhouse Gases, Nanostructure Applications
SAFRAN	130	Asset Purchase	Wireless Communication Networks, Communication Switches & Relays, Telephonic Communication, Signal Transmission, Data Transmission
AUTHENTEC	98	Company Acquisition	Data Presentation, Electric Elements - Semiconductor Devices, Digital Data Processing
LUXVUE TECHNOLOGY	98	Company Acquisition	Electric Elements - Semiconductor Devices, Miscellaneous Technologies, Mems Manufacturing, Layered Products
CVON INNOVATIONS	95	Asset Purchase	Data Transmission, Data Processing Systems, Wireless Communication Networks, Telephonic Communication, Digital Data Processing, Communication Switches & Relays
NEC	90	Asset Purchase	Telephonic Communication, Wireless Communication Networks, Communication Switches & Relays, Data Transmission, Digital Data Processing
ROCKSTAR CONSORTIUM	90	Asset Purchase	Wireless Communication Networks, Data Transmission, Signal Transmission
BEATS ELECTRONICS	71	Company Acquisition	Speakers, Microphones & Acoustic Transducers
FREESCALE	67	Asset Purchase	Signal Transmission, Data Transmission, Wireless Communication Networks, Digital Data Processing
PRIMESENSE	59	Company Acquisition	Image Data Processing, Data Presentation, Measurement - Length, Pictorial Communication, Optical Elements
AKONIA HOLOGRAPHICS	55	Company Acquisition	Optical Elements, Holography, Information Storage

## Acquired Portfolio Segment - Top CPC Codes

CPC Code	Description	# Applications
G06F 3/04883	Digital interface arrangements >> for entering handwritten data, e.g. gestures, text	482
G06F 3/0488	Digital interface arrangements >> using a touch-screen or digitiser, e.g. input of commands through traced gestures	427
G06F 3/044	Digital interface arrangements >> by capacitive means	362
G06F 3/0482	Digital interface arrangements >> interaction with lists of selectable items, e.g. menus	311
G06F 3/0416	Digital interface arrangements >> Control and interface arrangements for touch screen	288
G06F 3/0412	Digital interface arrangements >> Integrated displays and digitisers	269
G06F 3/04842	Digital interface arrangements >> Selection of a displayed object	230
G06F 3/04886	Digital interface arrangements >> by partitioning the screen or tablet into independently controllable areas, e.g. virtual keyboards, menus	225
H04W 88/06	Wireless network devices >> adapted for operation in multiple networks ; or having at least two operational modes	219
G06F 3/0485	Digital interface arrangements >> Scrolling or panning	218
G06F 1/1626	Other data processing equipment >> with a single-body enclosure integrating a flat display, e.g. Personal Digital Assistants [PDAs]	205
G06F 3/04817	Digital interface arrangements >> using icons	203
H01Q 1/243	Aerial structural details >> with built-in antennas	189
G06F 2203/04808	Digital interface arrangements >> Several contacts: gestures triggering a specific function, e.g. scrolling, zooming, right-click, when the user establishes several contacts with the surface simultaneously; e.g. using several fingers or a combination of fingers and pen	178
H02J 7/025	Charging, depolarising batteries and supplying loads from batteries >> using non-contact coupling, e.g. inductive, capacitive	165
G06F 3/0481	Digital interface arrangements >> based on specific properties of the displayed interaction object or a metaphor-based environment, e.g. interaction with desktop elements like windows or icons, or assisted by a cursor's changing behaviour or appearance	164
H02J 50/12	Circuit arrangements or systems for wireless supply or distribution of electric power >> of the resonant type	158
G06F 3/041	Digital interface arrangements >> Digitisers, e.g. for touch screens or touch pads, characterised by the transducing means	156
G06F 3/017	Digital interface arrangements >> Gesture based interaction, e.g. based on a set of recognized hand gestures	155
Y02D 70/142	Techniques for reducing energy consumption in wireless communication networks >> in Wireless Local Area Networks [WLAN]	153

## Select Key Patents in the Acquired Portfolio Segment

Publication Number	Title	Transferred from	Star Rating	# Forward Citations
US9178123B2	Light emitting device reflective bank structure	LUXVUE TECHNOLOGY	5	94
US9286795B2	System for transmitting, processing, receiving, and displaying traffic information	VORONA DIMITRI	4.5	77
US8151163B2	Automatic defect management in memory devices	Anobit Technologies	4.5	197
US9609190B2	Devices, methods, and systems for expanded-field-of-view image and video capture	INVISAGE TECHNOLOGIES	4.5	70
US8156403B2	Combined distortion estimation and error correction coding for memory devices	Anobit Technologies	4.5	277
US8390821B2	Three-dimensional sensing using speckle patterns	PrimeSense	4.5	149
US8594425B2	Analysis of three-dimensional scenes	PrimeSense	4.5	161
US8050086B2	Distortion estimation and cancellation in memory devices	Anobit Technologies	4.5	241
US8151166B2	Reduction of back pattern dependency effects in memory devices	Anobit Technologies	4.5	185
US8060806B2	Estimation of non-linear distortion in memory devices	Anobit Technologies	4.5	155

## High Quality Acquired Patents – Top Sub-technologies Covered

(\*High Quality ~ Relecura Star Rating 3 or more on a scale of 5)

Sub-technologies	Relecura Star Rating			
	3	3.5	4	4.5
Digital interface arrangements	81	42	31	16
Other data processing equipment	25	13	7	2
Telephone substation equipment	29	10	8	2
Radio transmission	42	15	13	5
Wireless network devices	19	2	5	2
Function specific digital computer	54	27	14	5
Wireless resource management	28	9	4	2
Providing wireless communication services to user via network	34	10	14	7
Reading or recognising printed or written characters	65	17	15	16
Details of Transmission systems	19	9	6	1
Hardware or software aspects of TV signals	52	3	6	5
Program control unit	24	3	7	3
Data switching networks	35	17	10	1
Error correction or detection in digital information	23	16	10	4
Arrangements, apparatus, circuits or systems for digital transmission	29	14	12	5
Various uses of digital transmission path	28	7	11	5
Communication protocols supporting network applications	23	14	12	4
Data security and security of computers and components	24	5	2	1
Power saving in wireless networks and devices	11	2	1	1
Modulated carrier systems	29	14	9	5

## Organic Vs Acquired Portfolio Segments – Technology Distribution

(# Applications given for color-coded categories)

Technology Categories		Organic	Acquired	% Share	
Data processing	Digital interfaces	Cameras	351	74	17.41
		Disk	536	93	14.79
		Display control	534	137	20.42
		Fingerprint	184	50	21.37
		GUI	6281	1136	15.32
		Info retrieval	1235	211	14.59
		Navigation	238	30	11.19
		Position tracking	5225	1135	17.85
	Power supply regulation	495	94	15.96	
	Fn specific computers	Buying, selling	360	166	31.56
		CAD	131	26	16.56
		File transfer	718	175	19.60
		Fingerprint reader	321	122	27.54
		Info retrieval	1901	447	19.04
		Natural language	1025	171	14.30
		Navigation	106	14	11.67
	Others	Billing	1544	419	21.34
		Error detection	805	176	17.94
		Info transfer	1132	273	19.43
	Program control	Security	1826	443	19.52
		Addressing, allocation	612	156	20.31
		Digital rights mgmt	256	50	16.34
		Info retrieval	722	163	18.42
		Interconnection handling	325	63	16.24
		Network digital I/O	343	98	22.22
		Power supply means	278	71	20.34
		Processor arch, config	184	21	10.24
	Electrical elements	Session mgmt	566	74	11.56
User I/O		1185	264	18.22	
Aerials		1021	322	23.98	
Batteries		375	77	17.04	
Connectors, collectors		1303	204	13.54	
Power supply		1367	418	23.42	
Others	Semiconductor devices	3503	1038	22.86	
	Switches	544	75	12.12	
	Navigation, maps	1307	276	17.44	
	Optical devices	449	93	17.16	
Pictorial communication	Speakers, microphones	1305	222	14.54	
	Speech synthesis	880	162	15.55	
	2D images	1185	286	19.44	
	Animation	352	47	11.78	
	Character recognition	1492	669	30.96	
	Digital interfaces	4280	846	16.50	
	Flat panel display circuits	2510	448	15.15	
	Fn specific computers	1055	260	19.77	
	Image processing	452	135	23.00	
	Image transformation	270	59	17.93	
Wireless communication	Image transmission	454	179	28.28	
	TV signals HW/SW	3360	912	21.35	
	Video coding, decoding	880	196	18.22	
	Aerial structures	419	160	27.63	
	Cryptography	1429	390	21.44	
	Digital interfaces	3470	795	18.64	
	Fn specific computers	905	240	20.96	
	Network hand-off	911	487	34.84	
	Packet-switched regulation	1861	706	27.50	
	Power saving	1265	454	26.41	
	Services	3792	1100	22.49	
Substation equipment	3551	958	21.25		
Transmission systems	1806	934	34.09		



## Contact Us

Do get in touch with us with your specific needs related to intelligence and decision support on all matters related to technology and its business impact. We will figure the best way to address your needs with an appropriate combination of our technology and reports. We offer a range of tailored solutions and flexible engagement models.



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