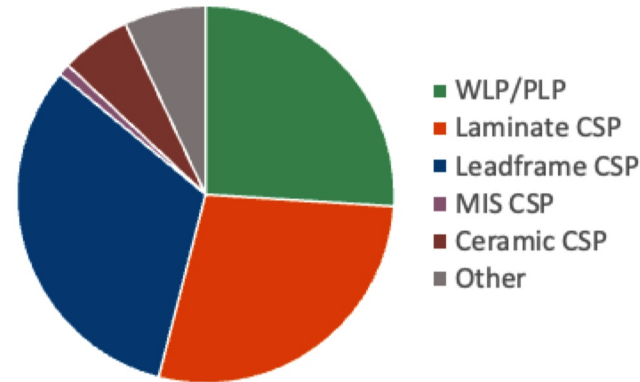


Samsung Galaxy A35 5G

Teardown from TechSearch International, Inc.



100 Packages Examined



Contents and Highlights

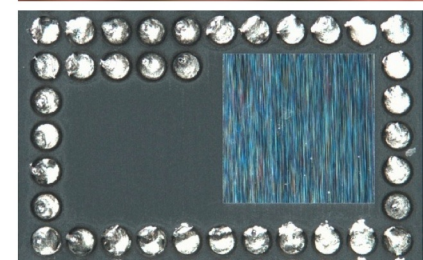
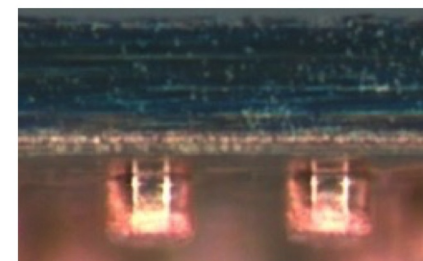
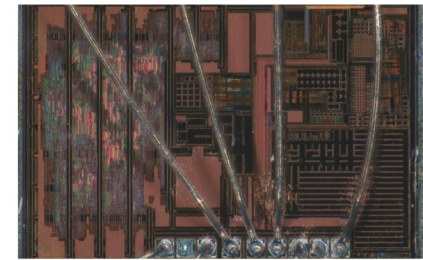
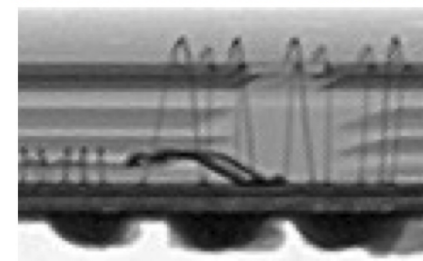
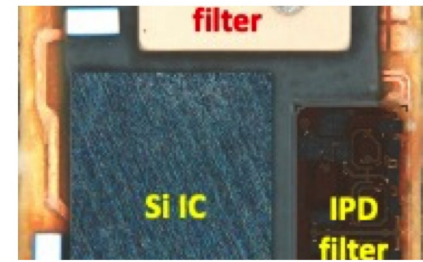
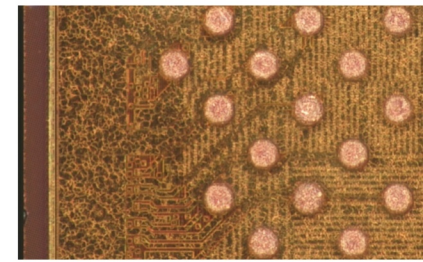
- 147-page report with package quantity summaries, high-resolution photos and x-rays, package dimensions, part numbers and descriptions
- 14 additional slides with extra details including thermal management analysis, RF modules with conformal shielding, decapsulation of Qualcomm UHB FEM and QFM4575 FEM, die and bump metrics for Samsung Exynos 1380 application processor and S5M5525 sub-6GHz transceiver, identification of die within Samsung MCP (48Gb LPDDR4X + 128GB UFS2.2 NAND), metrics for die and Cu wire bonds from IMAGIS ISG6320 grip sensing controller, and more

Teardowns backed by 36 years serving as the industry's trusted source for semiconductor packaging trend analysis

- Examination of all chips with emphasis on assembly and packaging technologies
- Superb quality photographs and x-ray images
- Both the packages and the die within are identified and characterized
- Detailed construction analysis of key chips and packages



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Sample pages from the report and slides

Samsung Galaxy A35 5G

SM-A356U

category Smartphone (mid-range)
released Mar 2024



Package quantities (by package type)

WLP/PLP	
Laminate CSP	
Leadframe CSP	
MIS CSP	
Ceramic CSP	
Other	
TOTAL	100

Total area (mm²) Bare die solutions included excluded

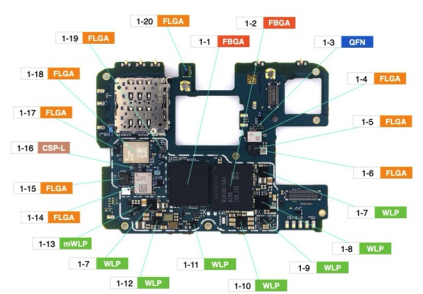
Package area

Package - Any device that has completed final packaging steps. Includes all bare die packaged devices as well as finished packages mounted on other packages/boards. Counts include not counted as packages. Bare die solutions - Finished devices received directly on boards or flex circuits (e.g., chip on board, chip on flex, chip on substrate, etc.)

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ASSEMBLY 1 — Main board side 1 (1 of 2)



1-19 FLGA, 1-20 FLGA, 1-2 FBGA, 1-3 OFN, 1-4 FLGA, 1-5 FLGA, 1-6 FLGA, 1-7 WLP, 1-8 WLP, 1-9 WLP, 1-10 WLP, 1-11 WLP, 1-12 WLP, 1-13 mWLP, 1-14 FLGA, 1-15 FLGA, 1-16 CSP-L, 1-17 FLGA, 1-18 FLGA

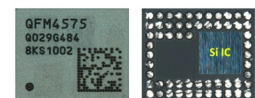
Comet Xylon provided equipment for x-ray.

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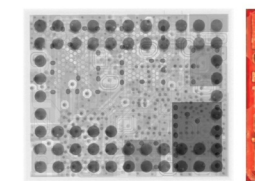
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Qualcomm QM4575 FEM

QM4575
Q0296484
8K51002



Double-sided FBGA with 58 balls
mm x mm x mm



Comet Xylon provided equipment for x-ray.

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PACKAGE QUANTITY DETAILS

Board-level assembled packages	Board-level	Package-level
WLP/PLP		
Laminate CSP		
Leadframe CSP		
MIS CSP		
Ceramic CSP		
Bare die on board/flex		
Other		
TOTAL	100	0

Package-level assembled packages	Board-level	Package-level
WLP/PLP		
Laminate CSP		
Leadframe CSP		
MIS CSP		
Ceramic CSP		
Bare die on board/flex		
Other		
TOTAL	100	0

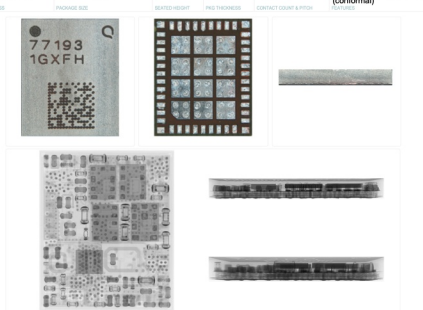
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ASSEMBLY 1 — Main board side 1 (1 of 2)

1-14 1 Qorvo RF FEM (LB) QM77193 RF Analog

FLGA (Laminate CSP) mm x mm mm 0.651 mm 46 mm Underfill, Flip chip, Shielding (conformal)

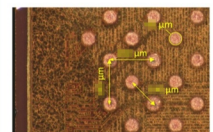
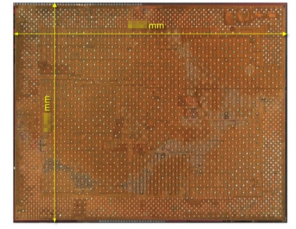


Comet Xylon provided equipment for x-rays.

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Die from Exynos 1380 AP

- Die size: 51.64 mm²
- Bumps: Cu pillars, staggered pitch
- Fabricated using Samsung's 5nm process technology

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PACKAGES BY SUPPLIER LOCATION

Supplier HQ	Count
China	
Europe	
Japan	
Korea	20
N America	
SE Asia	
Taiwan	
Other	
unknown	
TOTAL	100

Geographic quantities based on headquarters location of chip suppliers; includes bare die solutions

PACKAGE AREA BY CHIP TYPE

Chip Type	Area (mm ²)
Analog/Mixed-signal	
RF analog	209.3
Logic	
Memory	
Sensor-Actuator	
Image sensor	
Discrete	
Op-amp	
RF Passive	
IPD	
unknown	
TOTAL	855.4

Measured width x length; includes bare die solutions

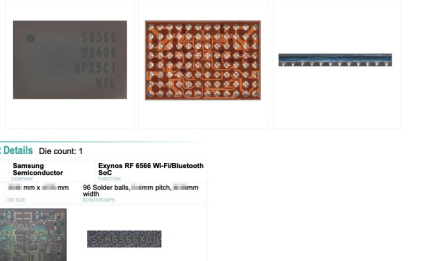
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ASSEMBLY 2 — Main board side 2 (1 of 2)

2-2 1 Samsung Semiconductor Exynos RF 6566 Wi-Fi/Bluetooth SoC S5N6566 RF Analog

WLP (WLP/PLP) mm x mm 0.51 mm 96 mm



Component Details Die count: 1

2-2-1 1 Samsung Semiconductor Exynos RF 6566 Wi-Fi/Bluetooth SoC

WLP (WLP/PLP) mm x mm 96 solder balls, mm pitch, mm width

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Samsung Galaxy A35 5G

REF ID	QTY	DESCRIPTION	MANUFACTURER	PACKAGE	SIZE	THICKNESS	HEIGHT	WEIGHT	FUNCTION	TEST	STATUS
3.2	1	Goodix	GT9801	Optical fingerprint sensor	Image Sensor	WB			1	Wire bond	
4.1	1	MMAGIS	IS66320	Chip sensing controller	Logic	DFN	1.39 x 1.69 x 0.6	8	0.4	1	Wire bond
4.2	1	Knowles	SPI Series	SiGe™ MEMS microphone	Sensor-Actuator	FLGA					
4.3	2	Qorvo	QM13335	RF switch (SP4T)	RF Analog	FLGA	1.28 x 0.95 x 0.5	10	0.35	1	Conformal coating, Flip chip
4.4	1	Qorvo	QM13346	RF switch (SP4T)	RF Analog	FLGA	1.49 x 1.09 x 0.46	10	0.4	1	Conformal coating, Flip chip
5.1	1	Goodix	GT9895	Touchscreen controller	Logic	FBGA					
5.2	1	Semtech		ESD & surge protection diode	Discrete	mWLP					
5.3	1	Semtech	µClamp2101T	ESD & EOS protection diode	Discrete	DFN					
5.4	1	Wirebond	W25Q40EW	4Mb serial flash	Memory	SON					
5.5	1	Samsung Semiconductor	S6E3FCS	Display driver (DDIC)	Logic	FC					
6.1	1	Samsung Semiconductor	3L6 (SRKLB0X)	1MP ISOCELL CIS	Image Sensor	WB					
6.2	1	Puys Semiconductor		256Kb serial EEPROM	Memory	WLP					
7.1	1	GalaxyCore	GC08A3	8MP CMOS image sensor	Image Sensor	WB					
8.1	1	Samsung Semiconductor	Q9E (S5M0N8P)	5MP ISOCELL CIS	Image Sensor	WB					
8.2	1	Puys Semiconductor		256Kb serial EEPROM	Memory	WLP					
8.3	1	Darfonson Analog	DW9827	AF driver	Analog/Mix-Sig	WLP					
8.4	2	AKM		Hall sensor IC	Sensor-Actuator	WB					
9.1	1	GalaxyCore	GC05A2	5MP CMOS image sensor	Image Sensor	WB					
10.1	2	Navision (Panasonic)	KFCAB21490L	Dual MOSFET with gate resistor	Discrete	WLP					
10.2	1	Mitsumi	MM3860ANZR	Li-ion battery protection IC	Analog/Mix-Sig	SON					

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