


Failure Analysis Pricing Table

Category	Analysis Type	Analysis Description	Price	Notes
Initial Analysis & Decapsulation	External Inspection	External Inspection	\$30	
	Electrical Test	Parameter Analyzer - Open/Short/LKG, Other Functional Tests	\$100	Testing for 1 hour
	Optical Scope Imaging	Simple Optical Imaging	\$50	Imaging for package & die
		Composite Optical Images Map	\$100	Matrix images from entire die
	X-Ray Analysis	2D X-Ray	\$75	3D X-ray is also available
	SAT/C-SAM Analysis	SAT Analysis	\$150	Scanning accoustic tomography
	Passivation & Bonding Analysis	Passivation Integrity Test	\$250	
		Bonding Cratering Test	\$150	
		Dye & Pry Analysis	\$250	
		Stain Analysis	\$150	
	System Tear-Down	Detach - 1	\$100	Hot gun detach
		Detach - 2	\$150	Grinding detach
		Detach - 3	\$250	Grinding detach + underfill remover
	Package Decapsulation	Decapsulation - Plastic	\$75	Plastic package decap
Decapsulation - Laser		\$90	Using laser decapsulation	
Decapsulation - BGA & MCP		\$125	For MCP & BGA type packages	
Sample Prep	Cross Section	Cross Section - 1 Cut	\$200	Sample prep + X- or Y-cut
		Cross Section - 2 Cuts	\$350	Sample prep + X- & Y-cut
		Cross Section - Ion Milling	+\$50	Extra cost for ion milling
		Cross Section - Mold	+\$150	Extra cost for using mold
		Cross Section - FIB	+\$150	Extra cost for FIB
	Delayering	Delayering - Top Metal	\$300	Remove only top metal
		Delayering - By Layer	+\$175	Remove 1 metal layer each
Delayering - Polish	\$200	Remove entire metal layers		
Fail Localization	Optical Fault Localization	OBIRCH Emission Analysis	\$125	OBIRCH
		PHEMOS Emission Analysis	\$125	PHEMOS
		THEMOS Emission Analysis	\$125	THEMOS at standard or lock-in modes
	SEM + EDS/EELS Analysis	SEM + EDS Analysis	\$200	SEM sample prep (~\$350) extra
Advanced Analysis	TEM + EDS/EELS Analysis	TEM Sample Prep/Cross Sectional	\$500	TEM sample prep
		TEM Sample Prep/Planar	\$1,000	
		TEM Imaging + EDS Scan	\$900	Image less than 1 hour per sample
		TEM Imaging + EELS Scan	\$1,500	
	AFM/SCM/SSRM Analysis	Sample Prep	\$400	Cross sectional sample
		AFM Scanning	\$250	Scanning for 1 hour
		SSRM Scanning	\$1,000	
		SCM Scanning	\$1,000	
	Micro-Probing of the Failed Spot	Circuit Modification - 2 & 3 Metal Layers	\$400	Al top metal-2nd & 3rd underlying Cu layers
		Circuit Modification - 4 Metal Layers	\$500	Al top metal-4th underlying Cu layers
		Circuit Modification - 5 Metal Layers	\$600	Al top metal-5th underlying Cu layers
Micro-Probing		Upon Request	Probing to the pad	
Nano-Probing			Direct probing to the metal	