

TABLE 1. 2005 NTI 100

RANK/MAKER	NATIONALITY	2005	2004	COMMENTS
1 Ibsiden	Japan	1,444	1,226	2006/2007 PCB investment: \$327M
2 Nippon Mektron*	Japan	1,135	1,020	Total including assembly: \$1,409M
3 CMK	Japan	1,084	1,055	New plant in Thailand and expanded in China
4 Shinko Electric	Japan	967	867	Growing by 10-15%
5 Samsung E-M	Korea	957	872	Emphasis on substrates and microvias
6 Unimicron	Taiwan	930	829	Production in China >\$300M and growing
7 Nanya PCB	Taiwan	839	566	IC substrate business growing; may hit \$1.1B in 2006
8 Young Poon Group	Korea	700	667	\$460M in flex
9 KB PCB Group	Hong Kong	694	580	E&E, Techwise, Glory Faith and Top Faith
10 Daeduck Group	Korea	654	559	New IC substrate factory; Philippines doing well
11 Fujikura Corp*	Japan	645	555	Total including assembly: \$782M
12 Multek	USA	620	450	Two plants added in China
13 Compeq	Taiwan	606	512	Shipped 143M cellphone boards
14 Hitachi Chemical	Japan	586	620	Japan, Singapore, Taiwan
15 LG Electronics	Korea	488	441	Emphasis on microvias and high layer-counts
16 Tripod	Taiwan	466	312	King of memory cards and LCD cards
17 Viasystems	USA	465	482	Dutch, Canadian plants closed
18 Sanmina-SCI	USA	460	420	Expanded China facility and up to 18 layers
19 Wus	Taiwan	454	420	Microvia and high layer-count MLBs
20 AT&S	Austria	440	361	2d Shanghai microvia plant operational
21 MMM-3M*	USA	400	375	Mystery maker always
22 Toppan-NEC	Japan	377	315	IC substrate business will quadruple in 2006
23 Meiko Electronics	Japan	367	335	New Wuhan plant operational and 2d Wuhan plant planned
24 Gold Circuit	Taiwan	365	340	2d China plant in Changshu; high-layer-count PCBs in Taiwan
25 Micro Circuit System*	Japan	363	315	King of chip-on-flex is expanding
26 Panasonic ED	Japan	345	340	Merging with Yamanashi MEW on Oct. 1
27 Tyco PCB	USA	340	375	Sold Spanish subsidiary (Microser)
28 Kyoden Group	Japan	336	321	Japan and Thailand, associates in China
29 PPT	Taiwan	324	177	Now heavily into plastic flip-chip substrate
30 Merix	USA	315	174	China subsidiary started to do well
31 Nitto Denko*	Japan	301	280	Spent \$150M; an additional \$150M to go
32 MGC Group	Japan	297	257	Owns Japan Circuit Industry and Tai Hong
33 Global Brands Manufacture Group	Taiwan	294	189	Three plants in China
34 Broad Technology	Taiwan	280	240	Three plants in Gunzgzhou
35 Fujitsu Interconnect	Japan	268	214	Expanding in both Japan and Vietnam
36 Meadville Technology	Hong Kong	268	245	Microvia plant under construction
37 Chin Poon	Taiwan	262	235	Minority share in Draco and ACP Electronics
38 HannStar PCB	Taiwan	261	163	30% of world notebook motherboards
39 Sumitomo PCB*	Japan	258	241	Japan, Philippines and China
40 Career*	Taiwan	252	210	Now, China operation is bigger
41 M-Flex*	USA	246	145	Paying \$500M for MFS; total \$410M in '05
42 TTM Technologies	USA	240	241	Growing by 15%; average layer count >20
43 Unitech	Taiwan	236	305	Did poorly in 2005, but now growing
44 Simmtech	Korea	224	145	IC substrate business is the growth engine
45 Daisho Denshi	Japan	220	240	Just built IC substrate plant (\$135M)
46 Elna	Japan	212	218	Japan and Malaysia
47 Dynamic	Taiwan	210	125	Kunshan plant expanding: China >Taiwan

48	Vertex	Taiwan	208	193	China subsidiary is Global Flex in Suzhou
49	Topsearch	Hong Kong	205	169	New plant in Shaoguan is now running full
50	Ruwel	Germany	205	193	Bought by Bear Stearns; new Romania plant
51	Kinsus	Taiwan	204	140	Big step into flip-chip substrate; new plant
52	Sumitomo Bakelite	Japan	200	210	Japan and Vietnam (60%)
53	Hutchinson*	USA	200	155	HDD suspension
54	Shindo Denshi*	Japan	195	200	Investing heavily in CoF
55	Yashin	Taiwan	192	198	Hardly any production in Taiwan
56	Hitachi Cable*	Japan	191	170	Investing in new CoF plant
57	Aspocomp	Finland	188	168	Building microvia plant in India (€75M)
58	Shirai Denshi	Japan	186	175	85% comes from PCB business, AOI
59	ISU Group	Korea	185	145	One of largest suppliers to Cisco
60	Foxconn Group	Taiwan	183	120	Big plants in Shenzhen and Yantai
61	ASE	Taiwan	182	180	Recovered from fire in Chung Li plant
62	KCE	Thailand	178	138	>50% goes to automotive electronics
63	APCB	Taiwan	177	112	Second China plant (Kunshan) finished
64	MFS	Singapore	175	196	Sold to M-Flex
65	Sumitomo Metal ED	Japan	174	165	Japan and Malaysia (IC substrate)
66	Kyocera SLC	Japan	173	148	New Ayabe plant in full swing
67	Shinko Mfg.	Japan	168	164	Flat
68	NTK	Japan	164	150	Investing \$273M on IC substrate plant
69	Innovex*	USA	160	120	Moved all manufacturing to Thailand
70	Photocircuits	USA	160	220	Bought by American Pacific Corp.
71	Sony Chemical*	Japan	150	219	Japan rigid board, China flex
72	DDi	USA	148	150	Stable under new management
73	Wuerth Electronics	Germany	147	117	Best performing German maker
74	SI Flex*	Korea	145	147	Third largest flex maker in Korea
75	Eastern	Japan	144	125	>90% comes from IC substrates
76	Yu Fo	Taiwan	129	79	China operation larger than Taiwan
77	Arrk PCB Group	Japan	128	111	Owns Clover Electronics, Satosen and Nippon Micron
78	Kyosha	Japan	127	138	Closed Mexico operation last year
79	CCTC	China	125	108	The largest "Chinese" maker
80	Plotech	Taiwan	121	102	China sales greater than Taiwan
81	Casio Micro-Elect	Japan	120	115	Reel-to-reel tape CoF and BGA
82	Biloda	Taiwan	120	75	Captive shop to a motherboard assembler
83	Maruwa Mfg.*	Japan	118	109	Japan, Malaysia, Indonesia and China
84	Sanwa Electric	Japan	118	115	Four group members were consolidated
85	Yamamoto Mfg.	Japan	116	114	Japan and Dongguan, China
86	T.P.T.	Taiwan	115	96	Growing rapidly
87	Redboard	Hong Kong	114	78	Somewhat in trouble
88	Ellington	Hong Kong	110	108	Not very accessible
89	Cosmotech	Korea	110	97	Korea and Dongguan, China
90	MEW Group	Japan	107	97	Merging with Panasonic ED on Oct. 1, 2006
91	Fuba	Germany	106	107	Crawled out of Chapter 11
92	Shye Feng Group	Taiwan	101	88	Taiwan, Thailand and China
93	EIT	USA	100	130	Shift from computer to military
Top 93 Total			29,567	26,028	Top 93 makers grew 12%