Advanced Market Report

Global LCD/OELD Components Report 2002

Infinite Technologies, Inc., (iTec) is pleased to announce the impending release of its latest report, **Global LCD/OELD Components Report 2002,** a companion volume to its LCD/FPD Market Strategies 2002 report, which will be released simultaneously. The latest report predicts that the global market for LCD components will exhibit average annual growth of 10% from 2001 through to 2006, reaching a value of ¥1,124 billion ($8.45 billion) by then. The report also predicts that the components market will account for 24% of the overall LCD module market by 2006, compared with 30% in 2001, indicating component suppliers will come under increasing pressure to lower prices.

A special feature of iTec's latest report is the focus on components for organic EL displays. iTec forecasts that this market will be valued at ¥225 billion ($1.7 billion) by 2006. iTec principal George Ohgaki says there is a high probability that driver ICs will become a bottleneck in OELD production. The driver IC market will be valued at an estimated ¥20 billion ($150 million) in 2006.

iTec believes that plastic substrates, chrome targets, rubbing cloths, sealants, and liquid crystal materials will be relatively immune to drastic price falls. These markets are characterized by the dominance of one or at most several players, the non-existence of substitute materials, and no in-house production by LCD manufacturers.

On the other hand, prices for color filters, orientation coatings, backlights, and light guide panels will tend to fall due to the lack of dominant players, a competitive market, and in-house manufacture at LCD manufacturers.

REPORT CONTENTS AND SUMMARY

0. Executive Summary

1. Special Feature: Organic EL Display Components Market Forecast
   I) OELD Market Forecast
   II) Light emitting materials market forecast
   III) Major components forecasts

2. Supply/Demand Forecasts for TFTs
   I) Trends in TFT Manufacturing Capacity
   II) Simulation of Supply/Demand Balance for Japanese, Korean, and Taiwanese Manufacturers
   III) Simulation of Small- and Medium-Screen TFT Supply/Demand Balance for Japanese Manufacturers

3. Major Bottlenecks in Expansion of the LCD and an Overview of the Market Structure for Components

   I) Evaluation of the Components Market
   II) Threats to the Expansion of the TFT Market/Bottlenecks in the Supply of Components (While most components should be in stable supply, unexpected events could lead to a 7–10% shortage for some components.)

III) Price Forecasts for Components

IV) Expectations for Price Reduction Demands based on Unit Price Forecasts for TFTs (Taiwanese 15" module prices will likely fall significantly to US$220, and even with falls in component costs, it will be difficult for manufacturers to turn profits for large-screen displays.)

4. Supply/Demand Balance Forecasts for Major LCD Components

(1) Glass substrates
(2) Color filters
(3) Driver ICs
(4) Polarizing sheets

5. Forecasts for LCD Component Markets

Factors covered (for each component type):
1) Market size forecasts (1999-2006), (2) Applications, technical trends, (3) Pricing trends, (4) LCD maker procurement trends, (5) Market share/competitive analysis (including relative market share (RMS)) (6) In-house production trends, etc.

1. Glass substrates: Strong players in both alkali-free and soda lime glass. Large scale expansions in alkali-free glass are planned, and unit prices are likely to fall 10%.

2. Thin film substrates: Panel makers will make these substrates in house for TFTs. Shift from chrome to resin black matrix will see market contract. Digging up new markets is a key challenge.

3. Plastic LCD substrates: Great growth potential, albeit from a small base.

4. Alkali encapsulation films: Mature STN, TN market means no great growth prospects.

5. ITO target materials: With only a few dominant players, and indium supply shortages, price drops are unlikely.

6. Protective electrode coatings: As STNs are now mainly small, the market will shrink. A few dominant players.

7. Color filters: While Toppan remains profitable in this market, capacity increases in Taiwan should see a softening market.

8. Dispersed pigment color filter resists: Stable growth in line with color filter demand growth.

9. Color filter pigments: Ciba is highly competitive here, and price falls are not foreseen.

10. Chrome targets, resin black matrixes: While Tosoh is extremely strong in chrome targets, environmental issues mean a probable shift to resin black matrix.

11. Color filter overcoats: Monopoly market. However, increased use of slit & spin process means usage will likely decline dramatically.

12. LCD Photoresists: Increased use of negative types for fine patterns. Highly competitive, oligopolistic market.

13. Orientation coatings: Three suppliers dominate the market, but it is highly competitive, and prices will tend to fall.

14. Spacers: Various types are available. Sekisui Fine Chemical leads by a wide margin. Significant market growth.

15. Rubbing cloths: A monopoly market, but manufacturers' progress towards rubbing-free processes makes this market an uncertain one.

16. Sealants (substrate bonding agents): Mitsui Chemicals is outright market leader. Price drops in this market, therefore, are virtually unthinkable.

17. Liquid crystal encapsulants: Henkel Japan is the market leader. Shift towards use of UV curing types.

18. Liquid crystal materials (mixtures): A few strong players, but competition between them is intense. Highly specialized products, so price falls will likely be insignificant.

19. Optical films (polarizing/phase-shift films): Rapid growth in viewing-angle widening films mainly for large TFTs. Increased supply capacity for PVA, TAC.

20. Fluorescent lamp-type backlight units: Expect changes in the market. Production has started in Taiwan. Cost controls need to be implemented swiftly.

21. EL lamp-type backlight units: Accompanying the proliferation of color screens cellular telephones and PDAs, market prospects are dim.

22. Light guide panels: Also supplied directly to LCD panel makers. ,Various market trends include LGP-less and prism sheet-less displays. Prices expected to fall dramatically.

23. Dispersion sheets: Dominated by three companies. Price drops not envisaged, but emergence of prism sheet-less, reflective types will influence the market.

24. Prism sheets: Monopolized by Sumitomo-3M joint venture in Japan. The emergence of prism sheet-less types, however, will place downward pressure on prices.

25. Touch panels: Market to grow rapidly for PDAs and large panels alike.

26. Anisotropic conductive films: Dominated by two suppliers, so minimal price drops predicted. Use has commenced in COG mounting of pSi-TFTs. Excellent growth prospects.

27. TCPs (TAB film carriers): Intense competition between two top players. COF mounting to increase due to trend towards narrow frame cellular and monitor screens.

28. Driver ICs: Supply capacity is in place. Tendency will be towards supply of 480-output drivers for use in high definition (SXGA or better) displays.

∞ Infinite Technologies, 2002

The **English language version** of **Global LCD/OELD Components Report 2002** is available as of April through Infinite Technologies' global marketing agent, Asia Info Tsushinsha, in either hard copy or .pdf document format. The report is priced at **US$2500–**. A **Japanese language version** is also available for the same price.

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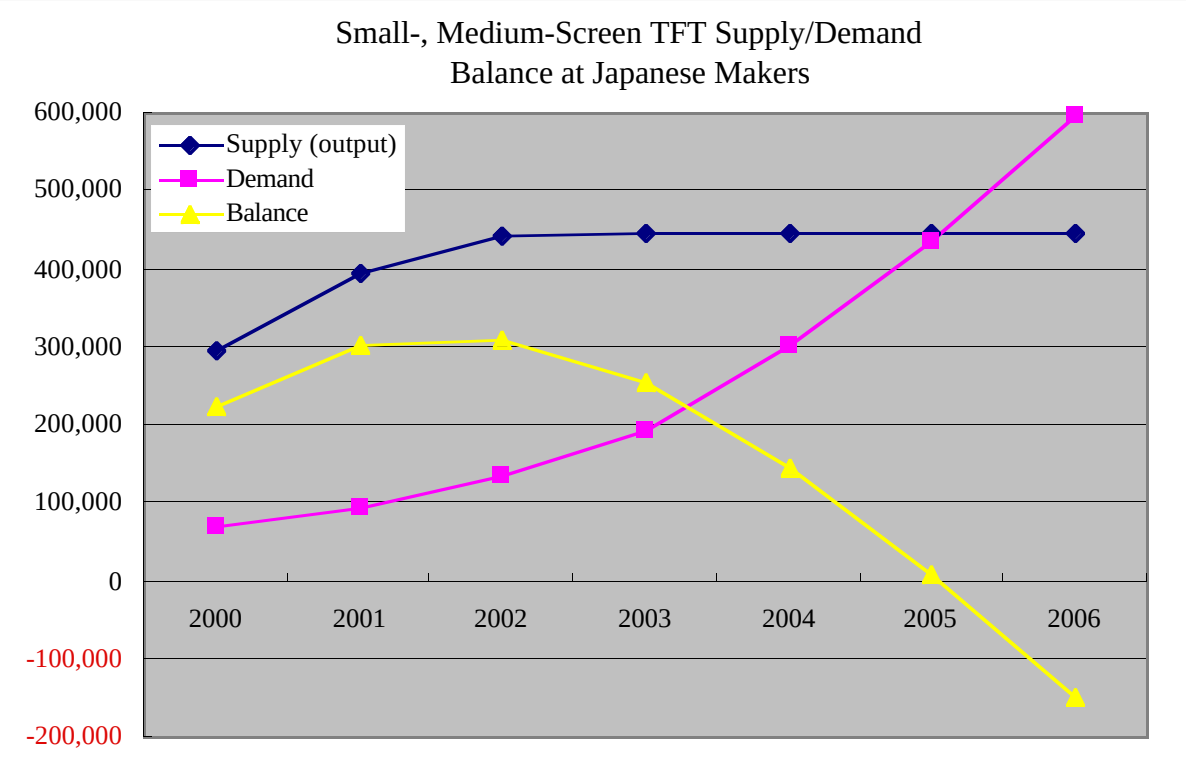
ABOUT INFINITE TECHNOLOGIES

Infinite Technologies, Inc. (iTec) was established in April 1999 by George Ohgaki, previously a consultant at Yano Research Institute. The company's staff of six specialize in analysis of three key areas: information technology; electronics; and new materials.

Major projects to date include consultation on marketing and R&D strategies at major Korean electronic component manufacturers, a study on merger & acquisition targets for European companies in the Japanese automotive component manufacturer sector, a survey on computer peripherals technology, an analysis of management at major U.S. semiconductor manufacturers, and a report on B-to-B and B-to-C E-commerce in Japan.

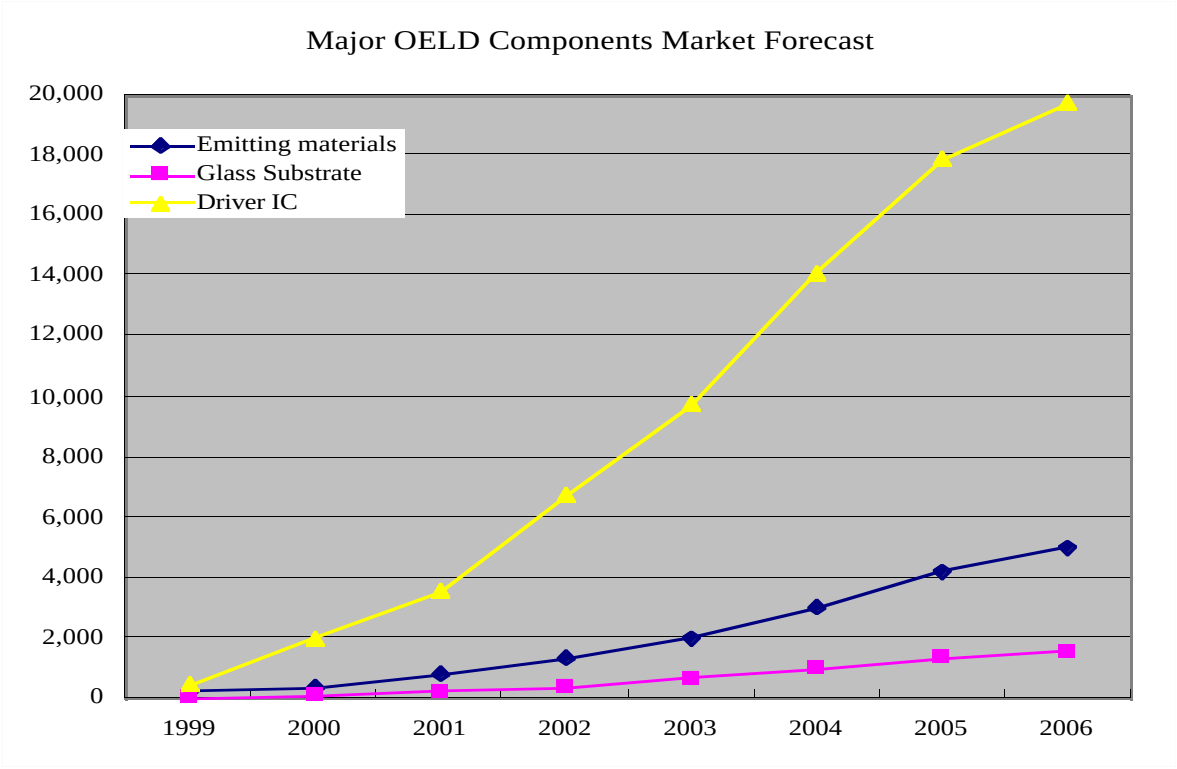
∞ Infinite Technologies, 2002

Sample data (Source: Infinite Technologies, 2002)



--Bottleneck Analysis for Major Components

	2002	2003	2004	2005	2006
Component bottleneck %					
Glass substrates	8.4%	8.2%	7.7%	8.0%	8.4%
Color filters	1.0%	-	5.8%	5.8%	7.8%
Polarizing films	-	-	-	2.9%	9.6%
Driver ICs	-	-	-	2.0%	6.1%
Assumed bottleneck	8.4%	8.2%	7.7%	8.0%	9.6%



--OELD Market by Screen Size

	2000	2001	2002
0-3"	350	2,510	5,250
3-5"	180	310	800
5-9"	20	180	400
Small, medium total	550	3,000	6,450
10-12"	0	0	0
13-15"	0	0	0
Large Total	0	0	0
Grand Total	550	3,000	6,450
Passive-OELD	550	3,000	6,450
TFT-OELD	0	0	0