

KAWASAKI STEEL TECHNICAL REPORT

No.30 (August 1994)

Special Issue on LSI

Overview of ASIC Technology and Business

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Synopsis :

The recent advancement of information processing technology has been achieved by the use of the ever increasing capabilities of ICs. Different application technologies, e.g., consumer electronics, computers and telecommunications are merging to form an entire new world of information technology that is recognized as accelerating a change of social structure. This special issue on LSIs reviews Kawasaki Steel Corporation's technology and business structure in the field of ASICs (application specific integrated circuits) that support the advancement of electronic equipment through higher functions and increased density.

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The body can be viewed from the next page.

Overview of ASIO Technology and Business*

Synopsis:

The recent development of information processing technology

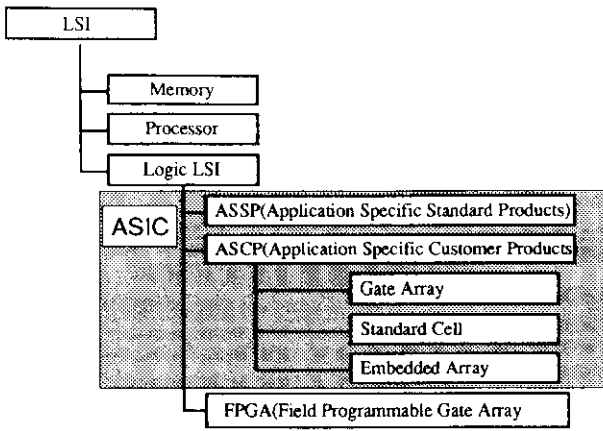


Fig. 2 Different types of ASICs

ed with metal layers to provide a logic function. Since the circuit can be modified easily by simply changing the metal placement, this method contributes to shorter development time.

(2) Standard Cell

A macro cell is designed on arbitrarily laid out transistors. While densities 30-40% higher than those of gate arrays can be realized, circuit modification involves changes in transistor layout, hence a full process must be run to obtain sample ICs. This will result in higher costs and require more time than in the case of gate arrays.

(3) Embedded Array

Portions that require no modifications are designed in the form of a standard cell and embedded in the

specific standard products) and ASCPs (application specific customer products). FPGAs (field programmable gate arrays) and PLDs (programmable logic devices), which allow user programming, are not included.

In the case of ASSPs, manufacturers determine the LSI specifications. Not only do they design and manu-

those of gate arrays can be realized, and circuit modification is facilitated.

It is an important function of ASCP manufacturers to work out a system that can provide the LSIs required by users with the minimum turnaround time. Such systems include design system (CAD and library) as well as manufacturing process which ensures delivery of

served by embedded arrays. By fixing memory and . Table 1. Examples of general purpose function call

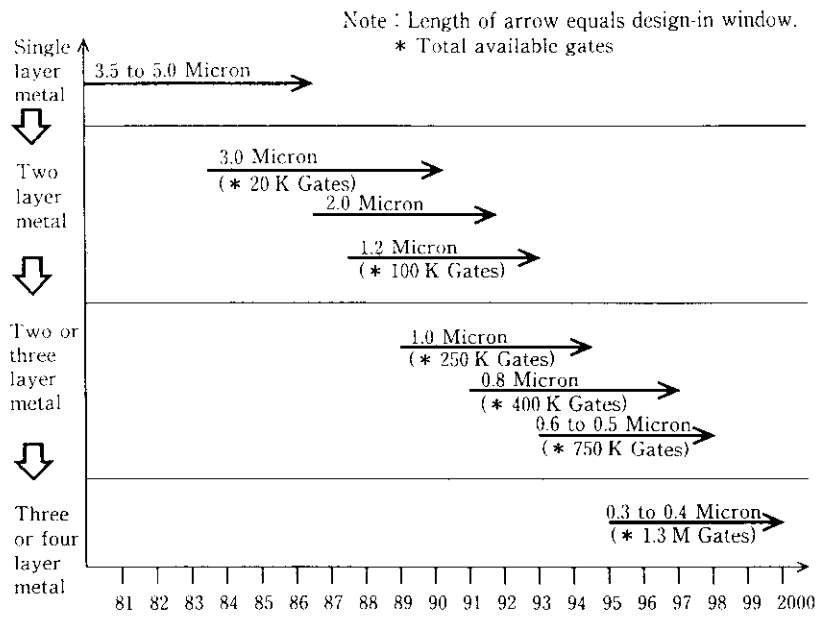


Fig 7. CMOS gate array start technology road map (Source: Dataquest, December 1992)