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**Modern Processing Technology for 6-inch GaAs Wafers**

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ANADIGICS has upgraded its production facility to 6-inch GaAs wafers in 1999 to serve its customers with timely and cost competitive products in the fast growing telecommunication markets. The main objectives for the 6-inch conversion were to reduce the cost of manufacturing and increase revenue generating capacity. Because a 6-inch wafer has 2.25 times the surface area of a 4-inch wafer with a comparable cost of fabrication, a substantial cost reduction can be achieved. The cost advantages are enhanced when improved cycle times and yields result from the application of modern manufacturing techniques. The ANADIGICS' wafer fabrication facility is the industry's first 6-inch analog microwave GaAs facility designed from the beginning for manufacturing cost effectiveness.

ANADIGICS wafer fabrication facility was designed with a process flow enhanced layout to optimize cycle time. As seen in Figure 1, 6-inch production cycle time was substantially reduced when compared to the best performance of the 4-inch facility. This improvement was due to many factors including the reduction of lot travel distance and enhancement of work-cell design. Another critical design element was the reduction of wafer handling through tool automation which resulted in process yield improvement. This is seen in Figure 2,

where process yields of 3-inch, 4-inch and 6-inch ANADIGICS operations are compared. The shorter learning cycle to achieve yield targets with the 6-inch process is a result of design methodologies employed.

Multiple device technologies are supported in 6-inch production. Apart from the workhorse MESFET technology, advanced device technologies such as HBT, pHEMT, and photodetector processes exist simultaneously in the same facility. All these technologies share the same process steps for more than 80% of processing. Some process steps are device dependent and unique to that technology. However, very little specialized equipment are dedicated to each technology.

ANADIGICS maintains industry's only 6-inch wafer backside via process for its advanced technologies. To improve the fabrication cycle time and achieve high yields, the backside process has been automated using separate wafer tracks and custom-made fixtures in wafer handling.

ANADIGICS' 10,000 square foot 6-inch facility, as seen in Figure 3, was qualified as production capable in July, 1999 and has supported all company wafer production since September, 1999 when the 4-inch facility was closed. This facility is currently undergoing expansion to double its size to 20,00 square feet.

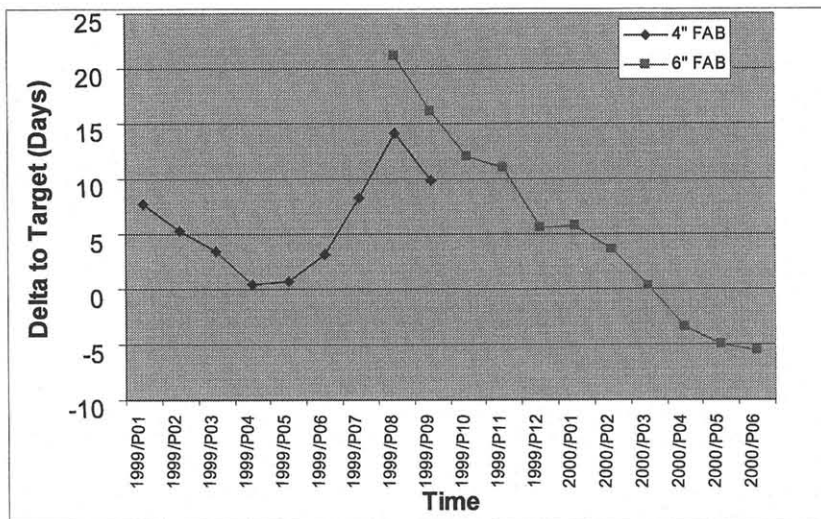


Figure 1: Cycle time reduction enabled by the 6-inch process flow design

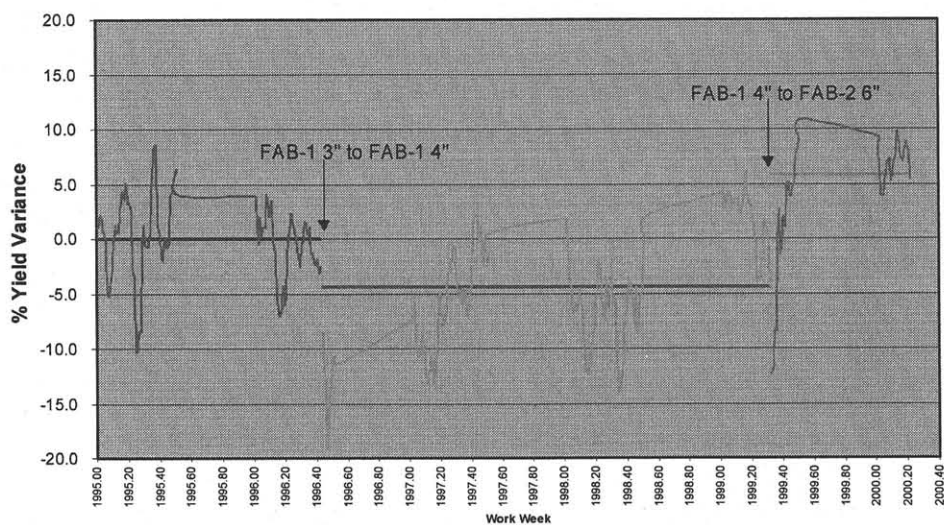


Figure 2: The 6-inch process produced higher yields with shorter learning cycle.

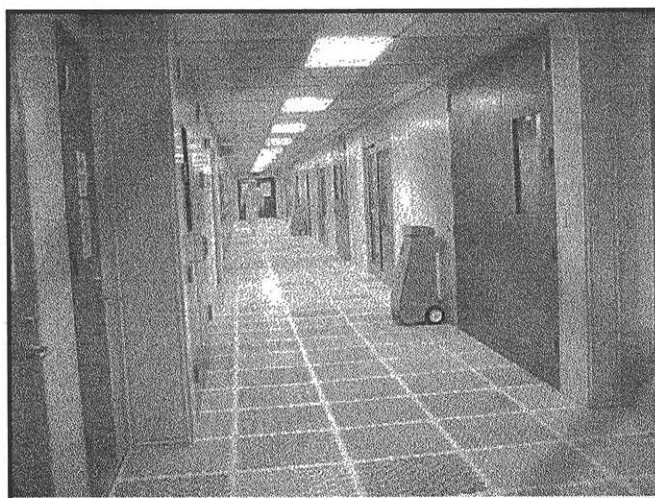


Figure 3: The ANADIGICS 6-inch wafer fabrication facility is based on bay-and-chase cell design.