

Application note 3 for the 2008 IC Cost Model – March 6, 2008

## Product Type Selections in the 2008 IC Cost Model

### Introduction

In the 2008 IC Cost Model the selection ‘4 Select product type for wafer sort’ is the major driver of the cost of wafer sort and class test costs. We often get questions about how to select from the various options in the drop down list. Some of the selections specify DRAM, Flash or SRAM memory and the memory density making selections straight forward, but other are more subjective. In this application note we will provide some guidance around ASIC product type selection.

### ASIC product types

The 2008 model offers seven ASIC selections; the following table presents the seven selections with selection criteria. Please note that these are just rough guidelines, ideally the actual test time is known and is selected in the ‘4 Defaults’ sheet. Of the guidelines presented here the linewidth and die size are preferred, the package pins are a fall-back but less accurate.

Product type	Linewidth (nm)	Maximum die size (mm <sup>2</sup> )	Selection notes
ASIC - low performance - very simple	800 500 350	8 4 2	Low performance ASICs would typically be produced with older technologies and larger linewidths. Very simple implies very small die. 8 to 16 pin packages.
ASIC – low performance – simple	800 500 350 250	16 8 4 2	Low performance ASICs would typically be produced with older technologies and larger linewidths. Simple allows slightly larger die. 16 to 32 pin packages.
ASIC – low performance – medium	800 500 350 250	32 16 8 4	Low performance ASICs would typically be produced with older technologies and larger linewidths. Medium allows medium size die. 32 to 64 pin packages.
ASIC – low performance – complex	800 500 350	64 32 16	Low performance ASICs would typically be produced with older technologies and larger linewidths.

	250	8	Complex allows fairly large size die. Packages up to 128 pins.
ASIC – high performance – simple	180 130 90	16 8 4	High performance ASICs would typically be produced with newer technologies and smaller linewidths. Simple allows smaller die. Up to 256 pins.
ASIC – high performance – medium	180 130 90 65	64 32 16 8	High performance ASICs would typically be produced with newer technologies and smaller linewidths. Medium allows medium size die. Up to 400 pins.
ASIC – high performance – complex	180 130 90 65	256 128 64 32	High performance ASICs would typically be produced with newer technologies and smaller linewidths. Complex allows large size die. Up to 700 pins.
ASIC – high performance – very complex	130 90 65	512 256 128	High performance ASICs would typically be produced with newer technologies and smaller linewidths. Very complex allows very large size die. Up to 1,000 pins.