creative cutting
solutions

Introduction of SnB

January 2020

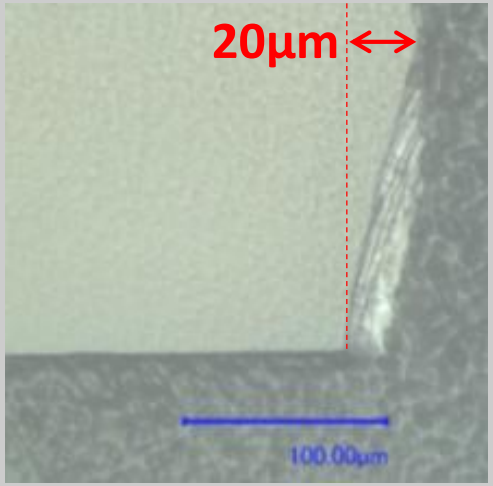
New Business Development Project

MITSUBOSHI DIAMOND INDUSTRIAL CO., LTD.

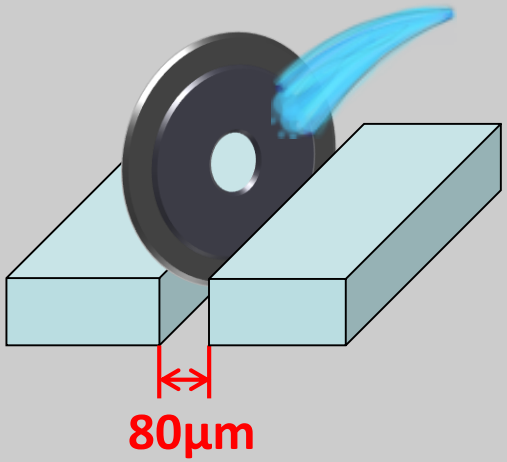
Scribe and Break

You might be struggling with…

Chipping



Kerf Loss



Low Productivity

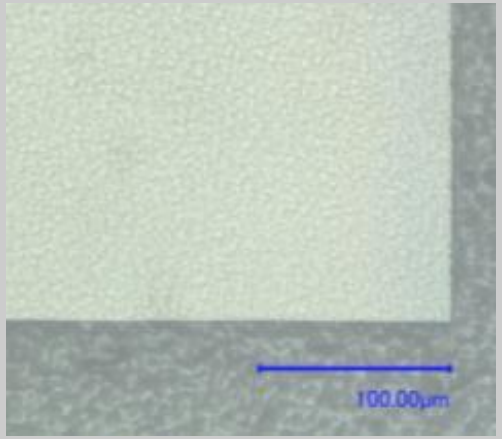
3-10mm/s

Wet Process

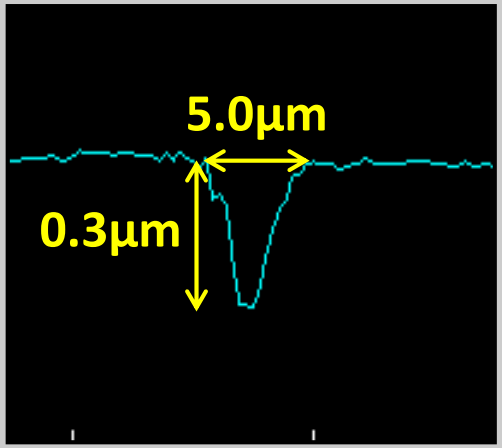
SnB is THE SOLUTION

PROBLEM SOLVED

No Chipping



No Kerf Loss



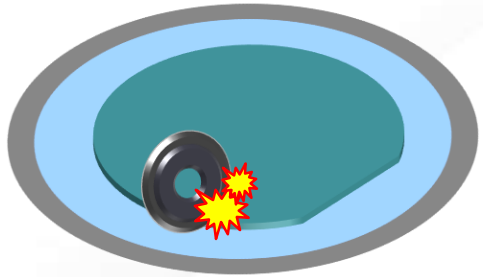
High Productivity

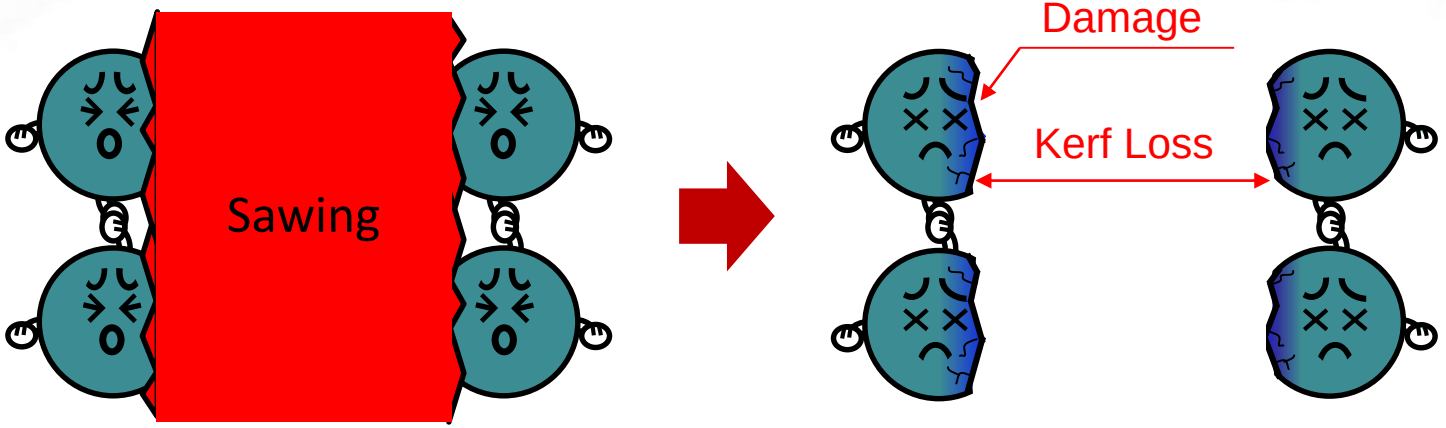
100-300mm/s

Dry Process

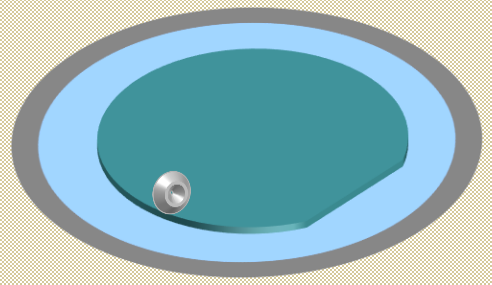
Why SnB can do that? SnB uses natural cleavage

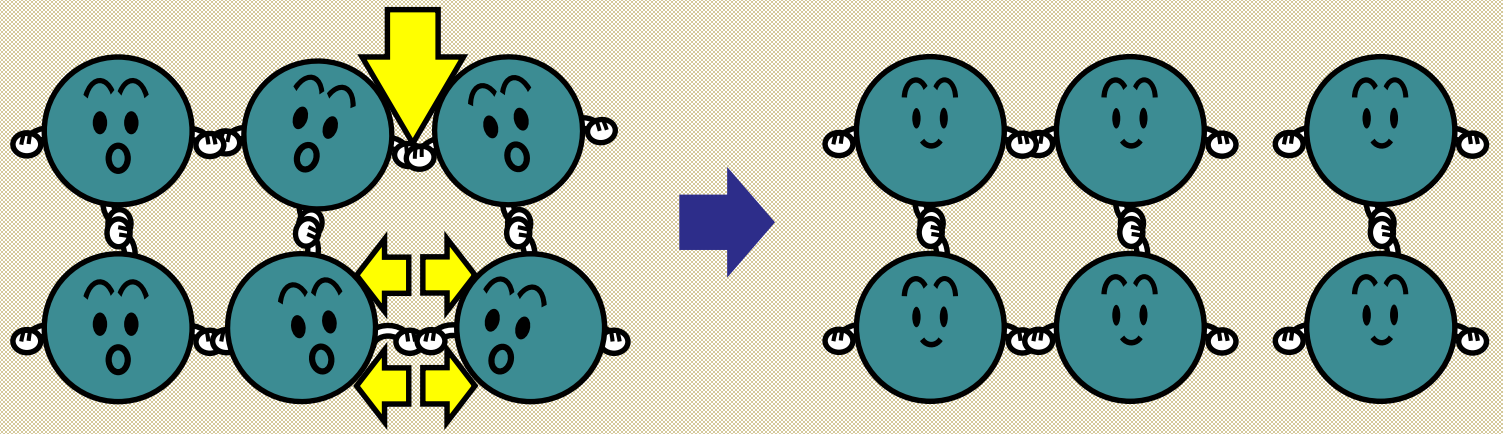
Blade Dicing





SnB

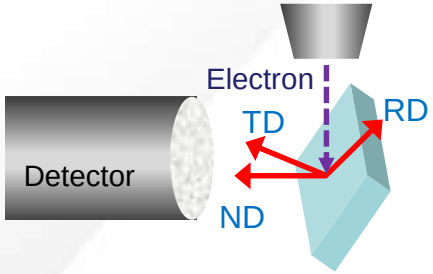




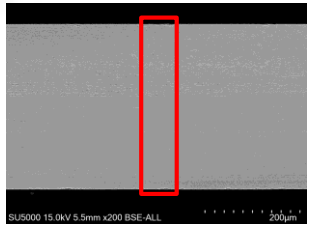
Wait…is that true? Take a look

The result of EBSD (Electron Back Scatter Diffraction) shows whether crystal is destroyed or not.

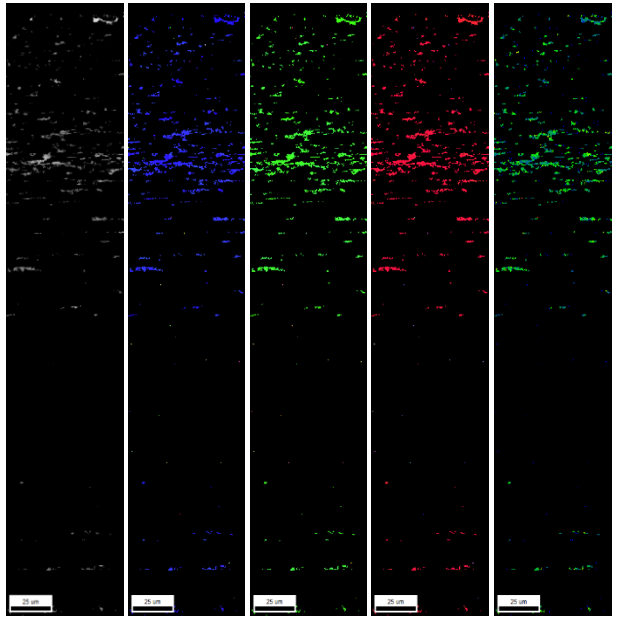
Crystal Clear!



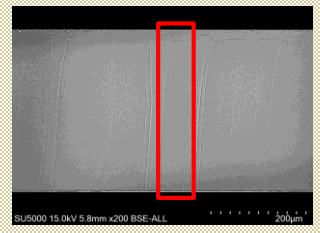
Blade Dicing



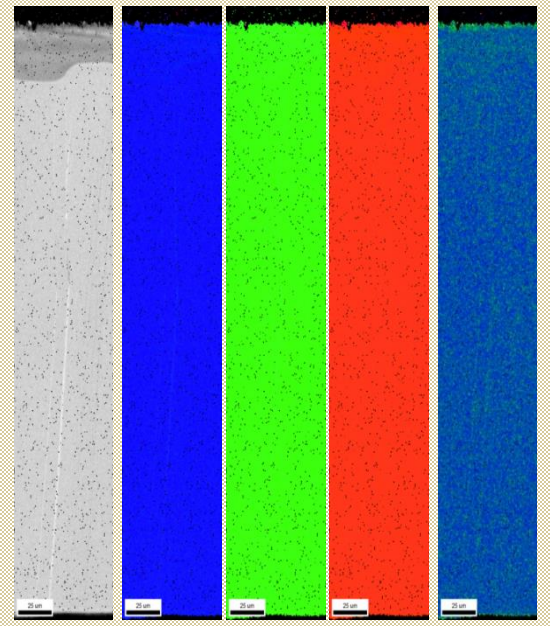
Destroyed



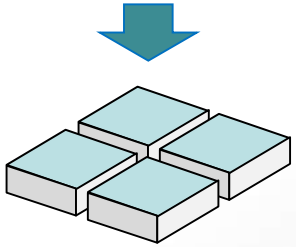
SnB



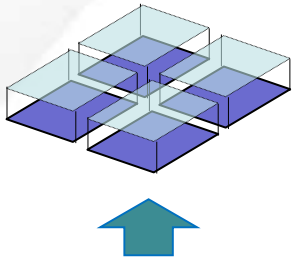
Kept in shape



Better Quality? No doubt

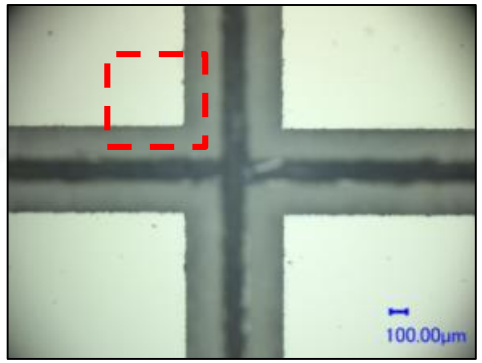


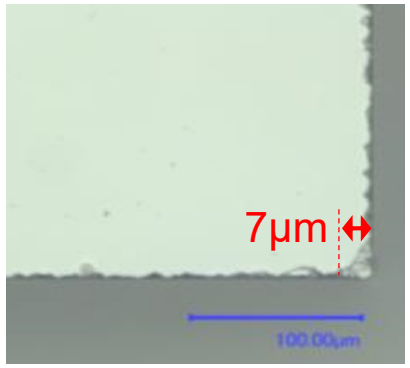
Top

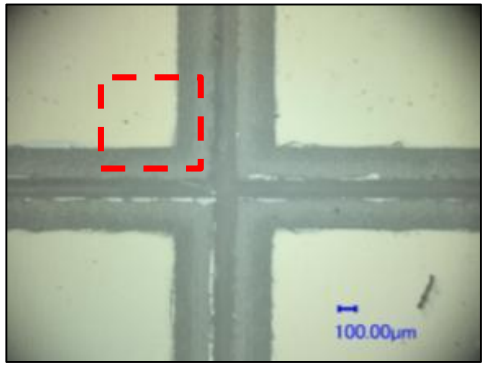


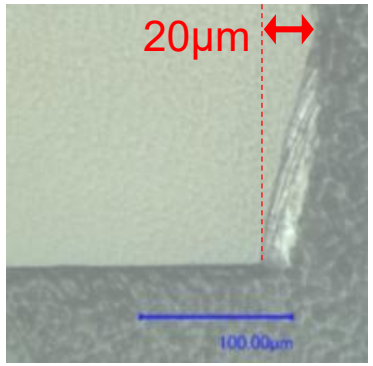
Bottom

Blade Dicing

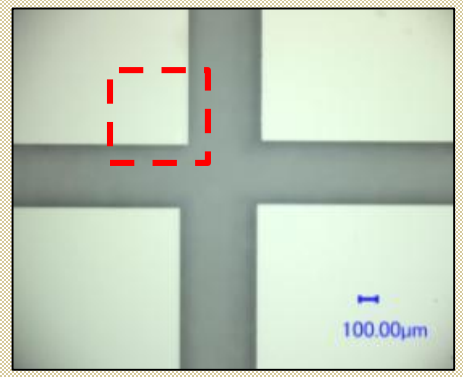


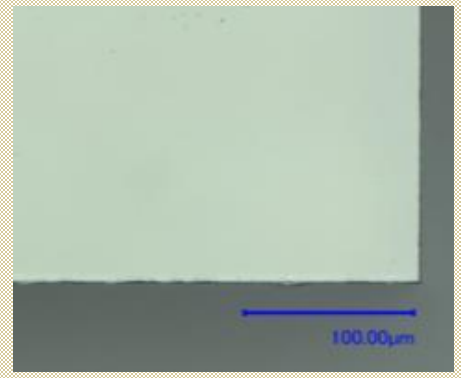


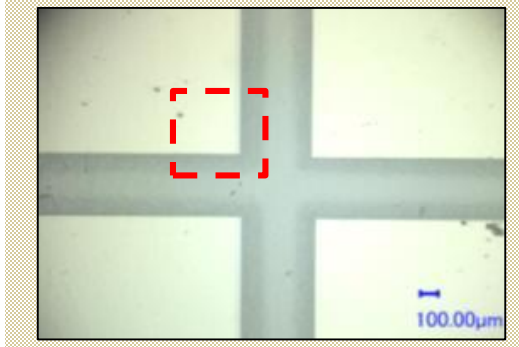


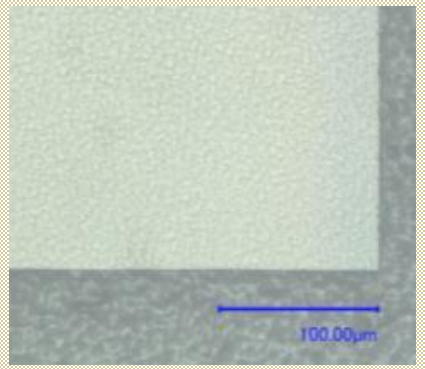


SnB

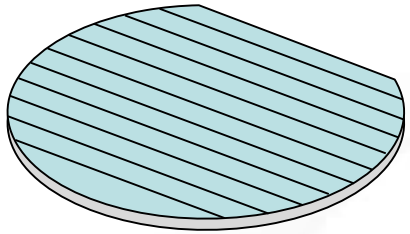
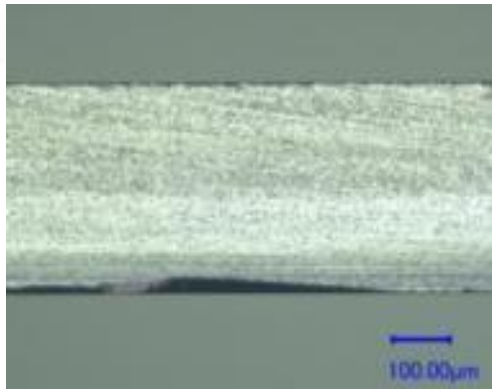
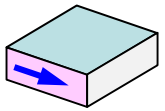
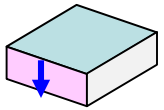
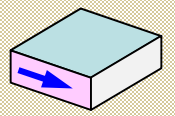
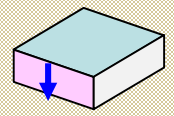
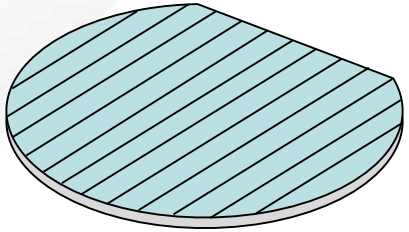
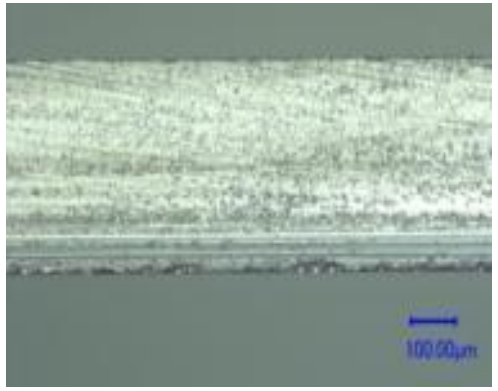
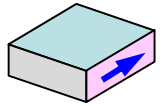
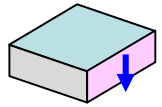
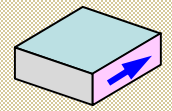
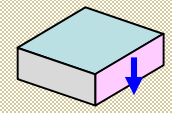




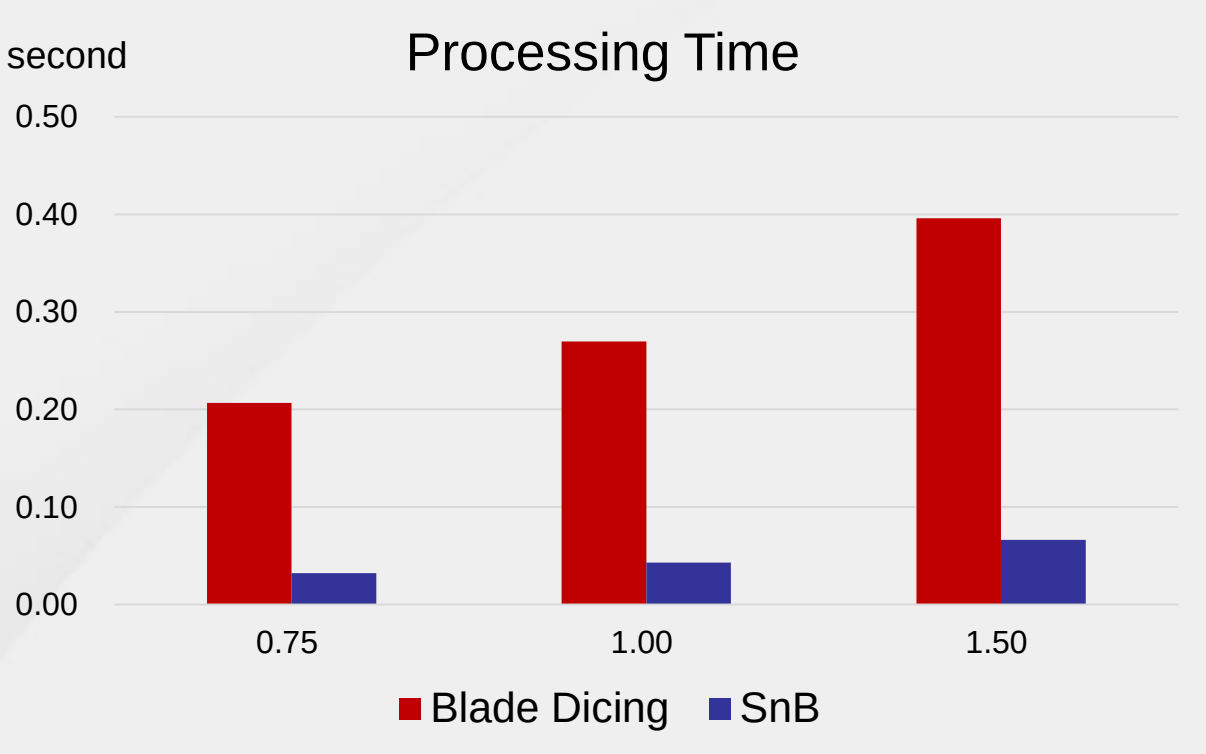




Better Quality? No doubt

	Blade Dicing		SnB	
 Parallel to orientation flat		 Rz=1.43 μm  Rz=1.47 μm		 Rz=0.17 μm  Rz=0.07 μm
 Orthogonal to orientation flat		 Rz=1.30 μm  Rz=1.37 μm		 Rz=0.87 μm  Rz=0.05 μm

Faster? Absolutely



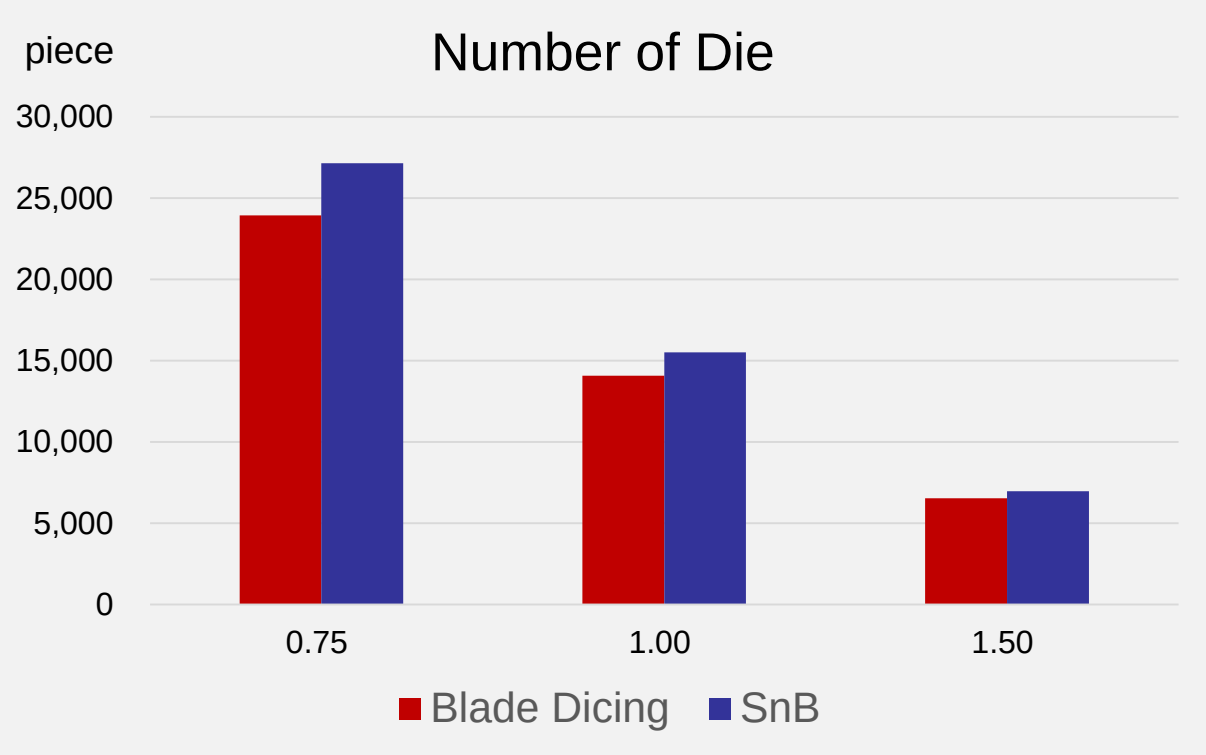
To process a chip on 6 inch wafer it takes…

Die Size	Blade Dicing	SnB	
Scribe Speed	10 mm/s	100 mm/s	
0.75 mm	0.207 s	0.032 s	- 84.4 %
1.00 mm	0.270 s	0.043 s	- 84.0 %
1.50 mm	0.396 s	0.066 s	- 83.2 %

SnB is 10 times faster

* Based on original calculations of MDI

More dies? Sure



Following number of die obtained from 6 inch wafer

Die Size	Blade Dicing	SnB	
Street Width	80 µm	30 µm	
0.75 mm	23,936 pcs	27,144 pcs	+ 13.4%
1.00 mm	14,076 pcs	15,504 pcs	+ 10.1%
1.50 mm	6,536 pcs	6,964 pcs	+ 6.5%

Get 13% more dies!

* Based on original calculations of MDI

What would you choose?

Disappointing or **Smart and Best**

Damaging
Slow
Bad Productivity
Eco Unfriendly

High Quality
Fast
High Productivity
Eco Friendly

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