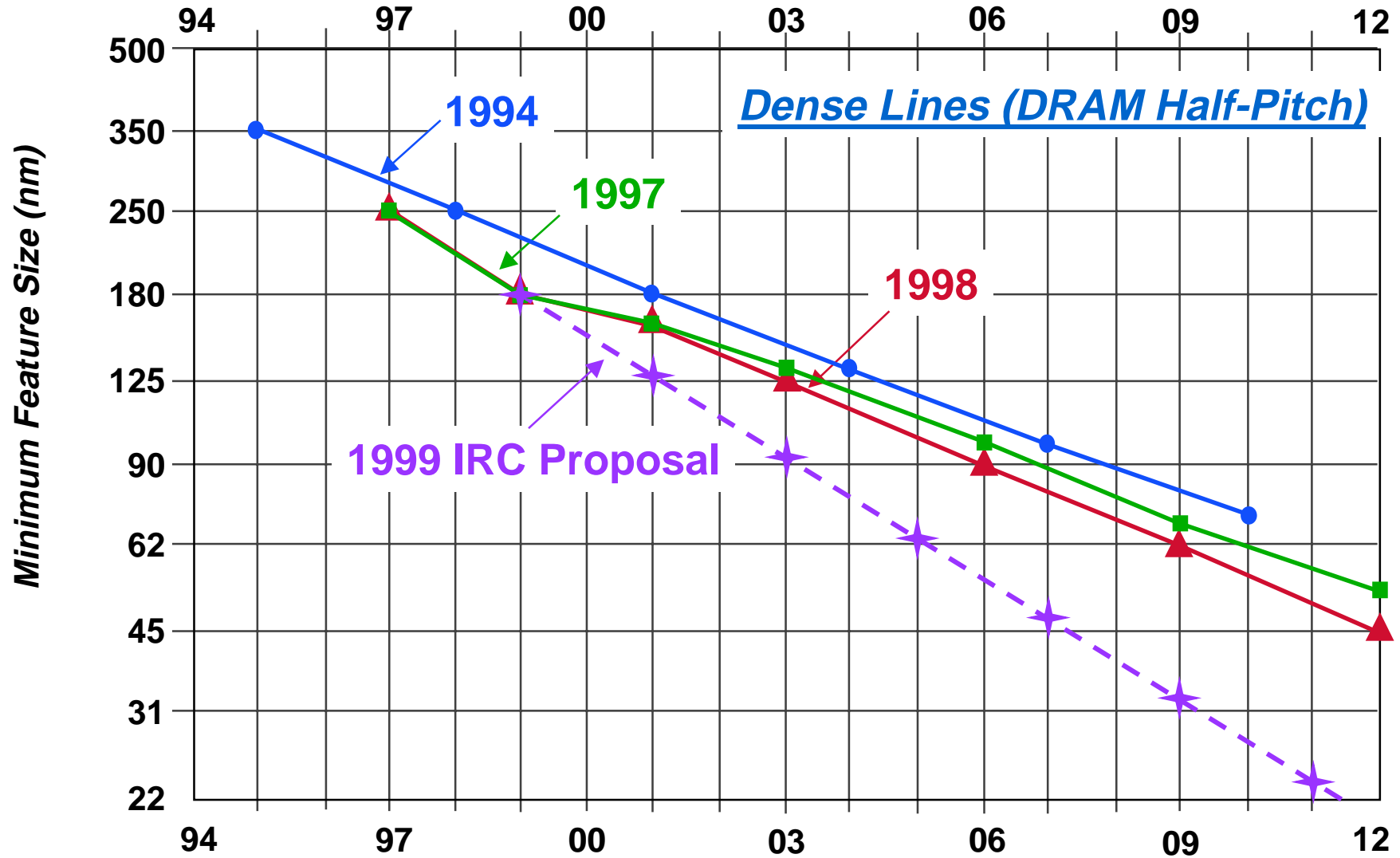
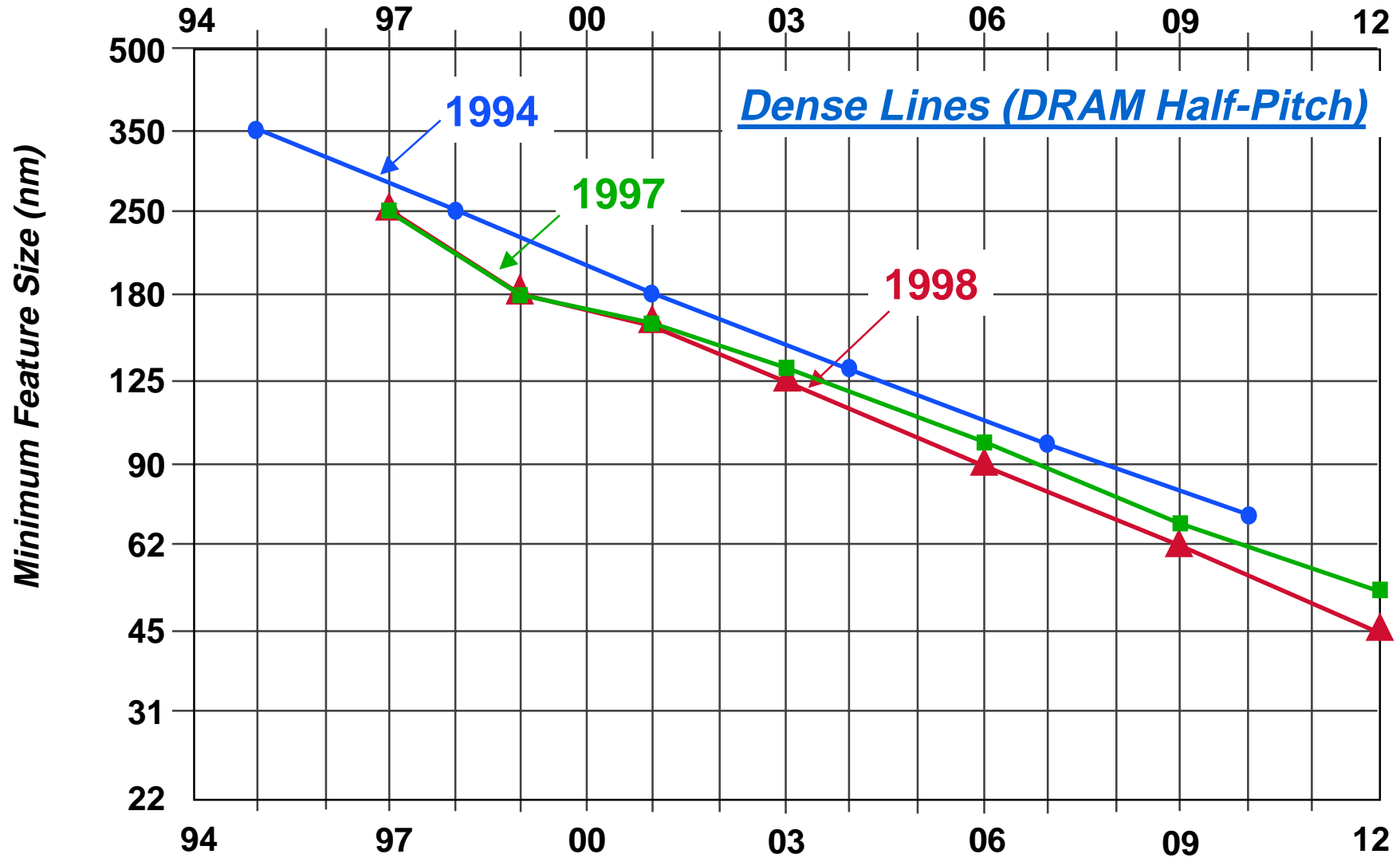
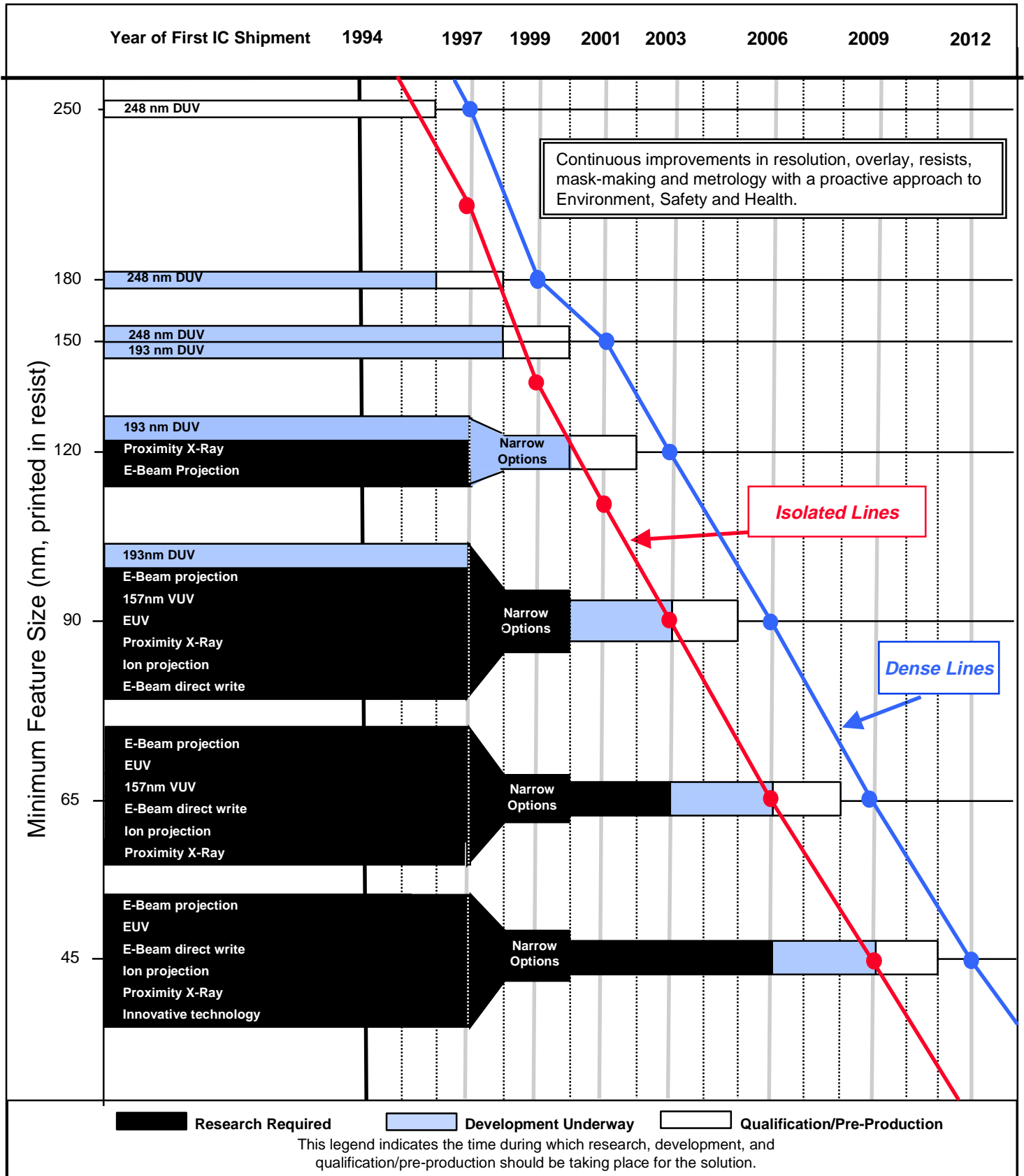


# SIA Roadmap Acceleration

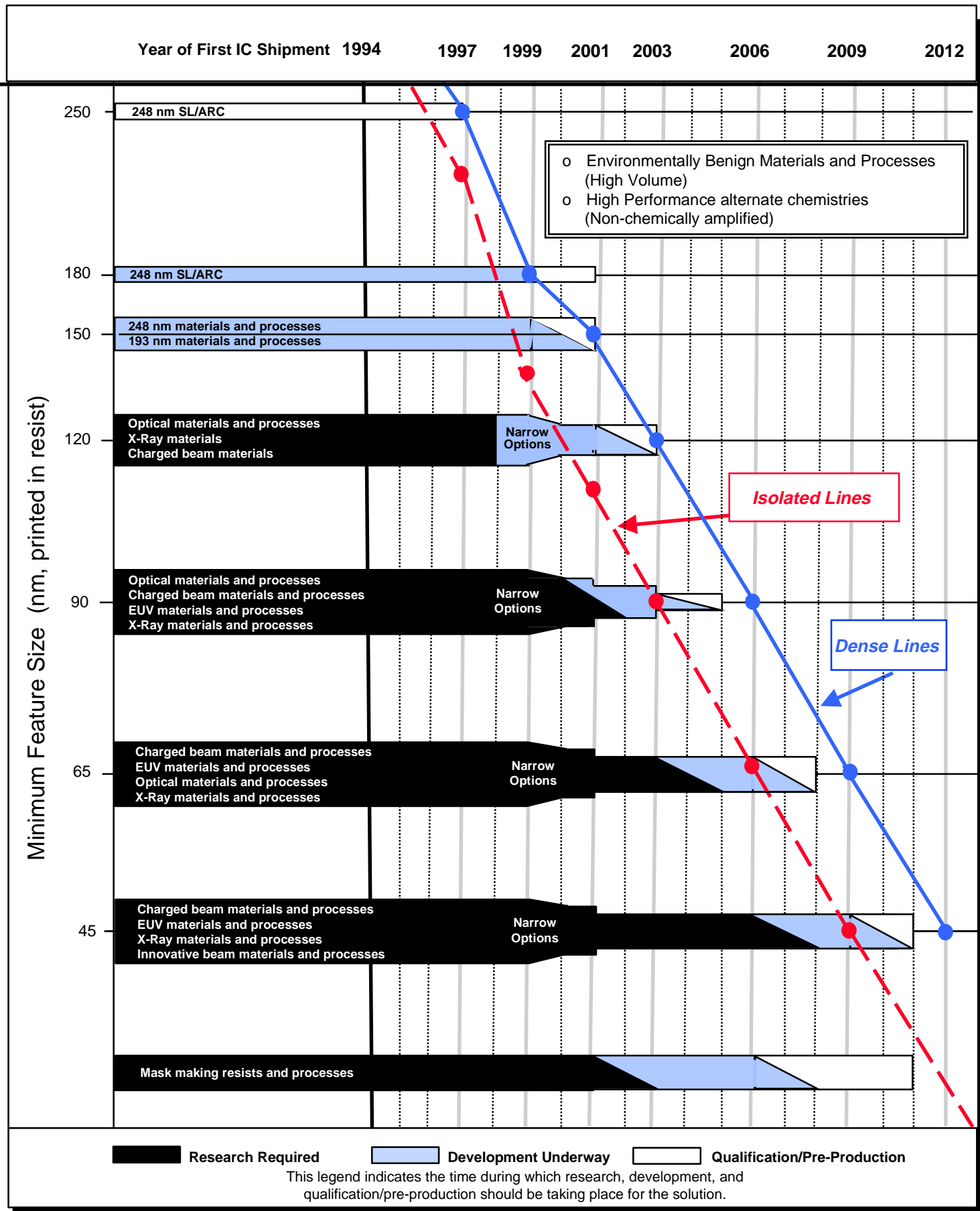


# SIA Roadmap Acceleration



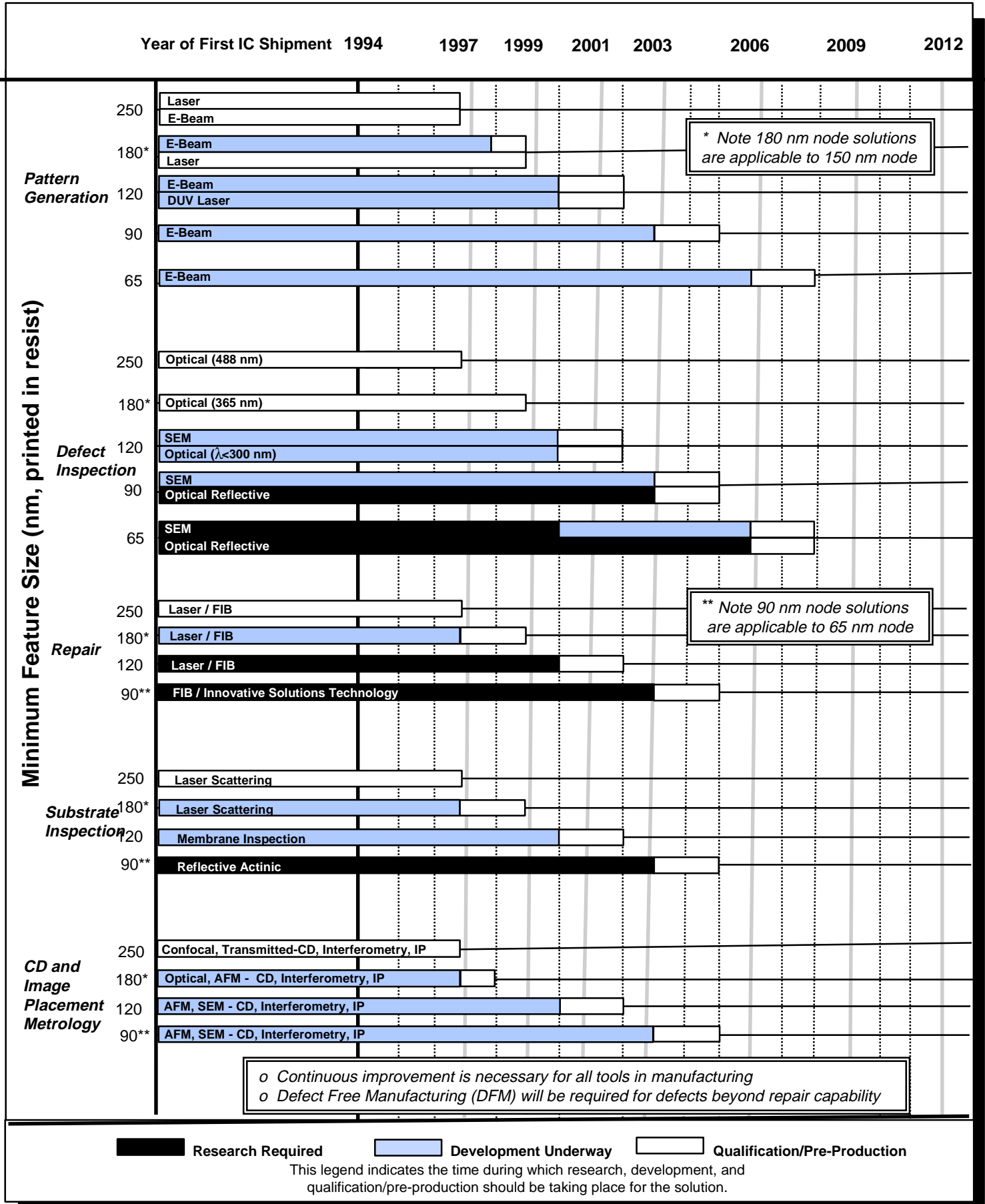


**LITHOGRAPHY - FIGURE 18 CRITICAL LEVEL EXPOSURE TECHNOLOGY POTENTIAL SOLUTIONS**



SL - single layer  
ARC - antireflective coating

**LITHOGRAPHY - FIGURE 19 CRITICAL LEVEL RESIST TECHNOLOGY POTENTIAL SOLUTIONS**



\* Note 180 nm node solutions are applicable to 150 nm node

\*\* Note 90 nm node solutions are applicable to 65 nm node

o Continuous improvement is necessary for all tools in manufacturing  
o Defect Free Manufacturing (DFM) will be required for defects beyond repair capability

Research Required      Development Underway      Qualification/Pre-Production

This legend indicates the time during which research, development, and qualification/pre-production should be taking place for the solution.

SEM - scanning electron microscope  
FIB - focused ion beam

AFM - atomic force microscopy  
IP - image placement

**LITHOGRAPHY - FIGURE 20 CRITICAL LEVEL MASK TECHNOLOGY POTENTIAL SOLUTIONS**