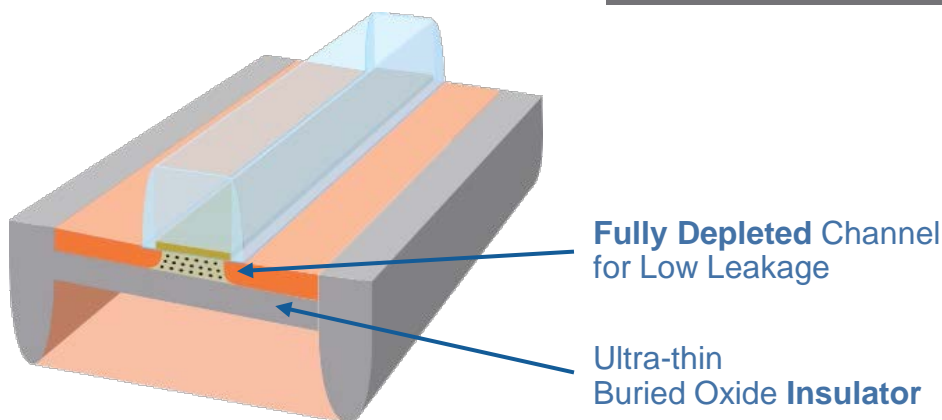


### 22FDX™ Platform Fully-Depleted Silicon-On-Insulator

- ✓ Delivers FinFET-like performance and energy-efficiency at cost of 28nm planar
  - 70% lower power than 28nm HKMG
  - 20% smaller die than 28nm bulk planar
  - 20% lower die cost than 16/14nm
  - Ultra-low power consumption with 0.4V operation (90% lower power than 28nm HKMG)
  - Software-controlled transistor body-biasing for flexible trade-off between performance and power
  - Integrated RF for reduced system cost and back-gate feature to reduce RF power up to ~50%
- ✓ Right technology for right markets
  - Ideal for mobile, IoT and RF connectivity and networking applications
- ✓ Lower risk engagement
  - Leverages bulk digital design flows and existing EDA tools
  - Fully enabled with foundation IP and application-specific complex IP
  - Design starter kit, multiple product wafers, and early customer prototyping to ensure first-time production success

### Application-optimized Platform Offerings

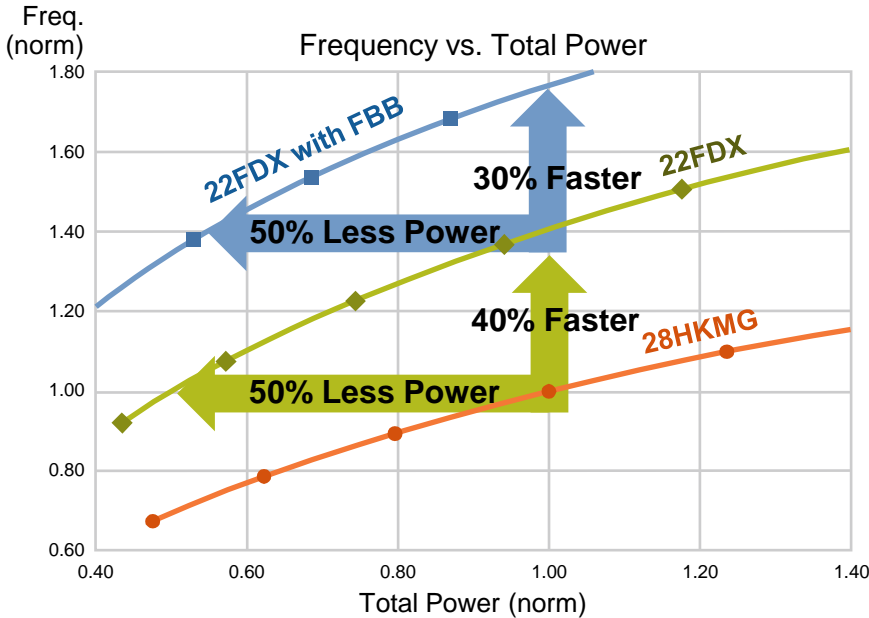
22FDX-up	Ultra-low Power
<ul style="list-style-type: none"> <li>• FinFET-like performance with 70% lower power vs. 0.9V 28nm HKMG</li> <li>• Ultra low-voltage operation (~0.4V) with 90% lower power vs. 28nm HKMG</li> <li>• Dynamic tradeoff of performance vs. power with body-biasing</li> </ul>	
22FDX-ull	Ultra-low Leakage
<ul style="list-style-type: none"> <li>• Additional devices for ultra-low static leakage (~1pA/μm)</li> <li>• ULL SRAM with &lt;1pA/cell leakage</li> <li>• IP for BTLE, Zigbee and Thread</li> </ul>	
22FDX-rfa	RF & Analog
<ul style="list-style-type: none"> <li>• Integrated RF and analog for reduced system cost and power</li> <li>• Resistors, capacitors, inductors, transmission lines, transformers</li> <li>• RF BEOL with Ultra Thick Metal stacks</li> <li>• RF design enablement to leverage body-bias</li> </ul>	



**FD-SOI** – Fully-Depleted Silicon-On-Insulator  
– Planar process similar to bulk



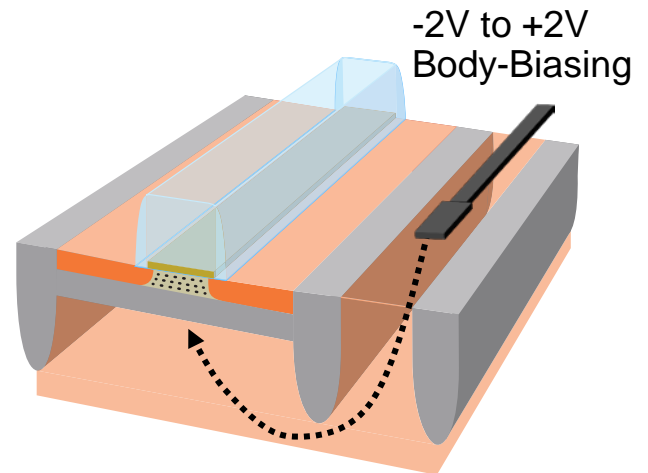
### Dynamic Body-Bias Extends FD-SOI Flexibility



- 50% lower power at same frequency
- 30-40% faster performance at same power
- Same performance at lower V<sub>dd</sub>
- Forward body-bias advantage: Software-controlled body-bias enables dynamic tradeoffs between power, performance and leakage

### Architected for Effective Body-biasing

- Software-controlled body-bias enables dynamic tradeoffs between power, performance and leakage
- Forward Body Bias (FBB) enables FinFET-like performance and power efficiency at 28nm cost, low voltage operation down to 0.4V without speed loss
- Reverse Body Bias (RBB) enables low leakage down to 1pA/micron
- Can be used to reduce variability across the die and/or die-to-die



### Ecosystem