

Repurposing game technology for real time, handheld 3D data capture

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Tom Greaves

DotProduct LLC

tom@dotproduct3d.com

Who is DotProduct?

- Founded 2012
 - Houston, Boston, Wiesbaden
- Privately funded
 - Seed investment from Intel Capital
- Product
 - DPI-7 Imager running Phi.3D software
 - First shipments in August 2013

Management Team



Why DotProduct?

- Opportunity
 - Faster and smaller tablets and phones
 - Depth sensing cameras
 - shrinking
 - becoming mainstream

3D Camera Timeline

(Form Factor)

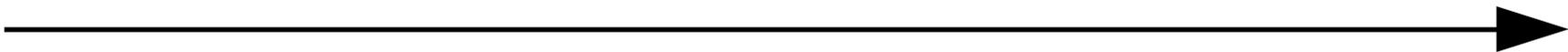
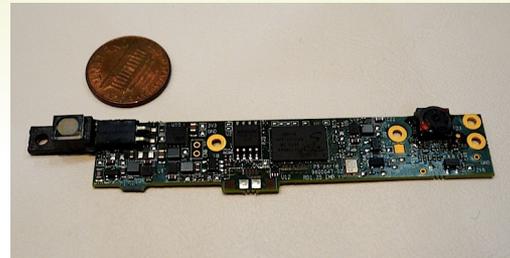


2008

2014

3D Camera Timeline

(Price)



\$5000

\$300

Integrated

Sensor Timeline



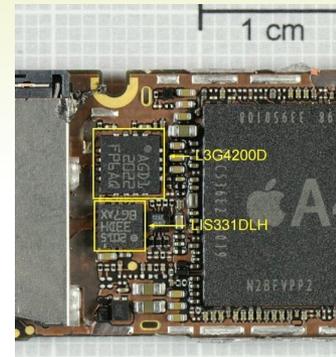
Digital 2D Cameras →



GPS →



Accelerometers →

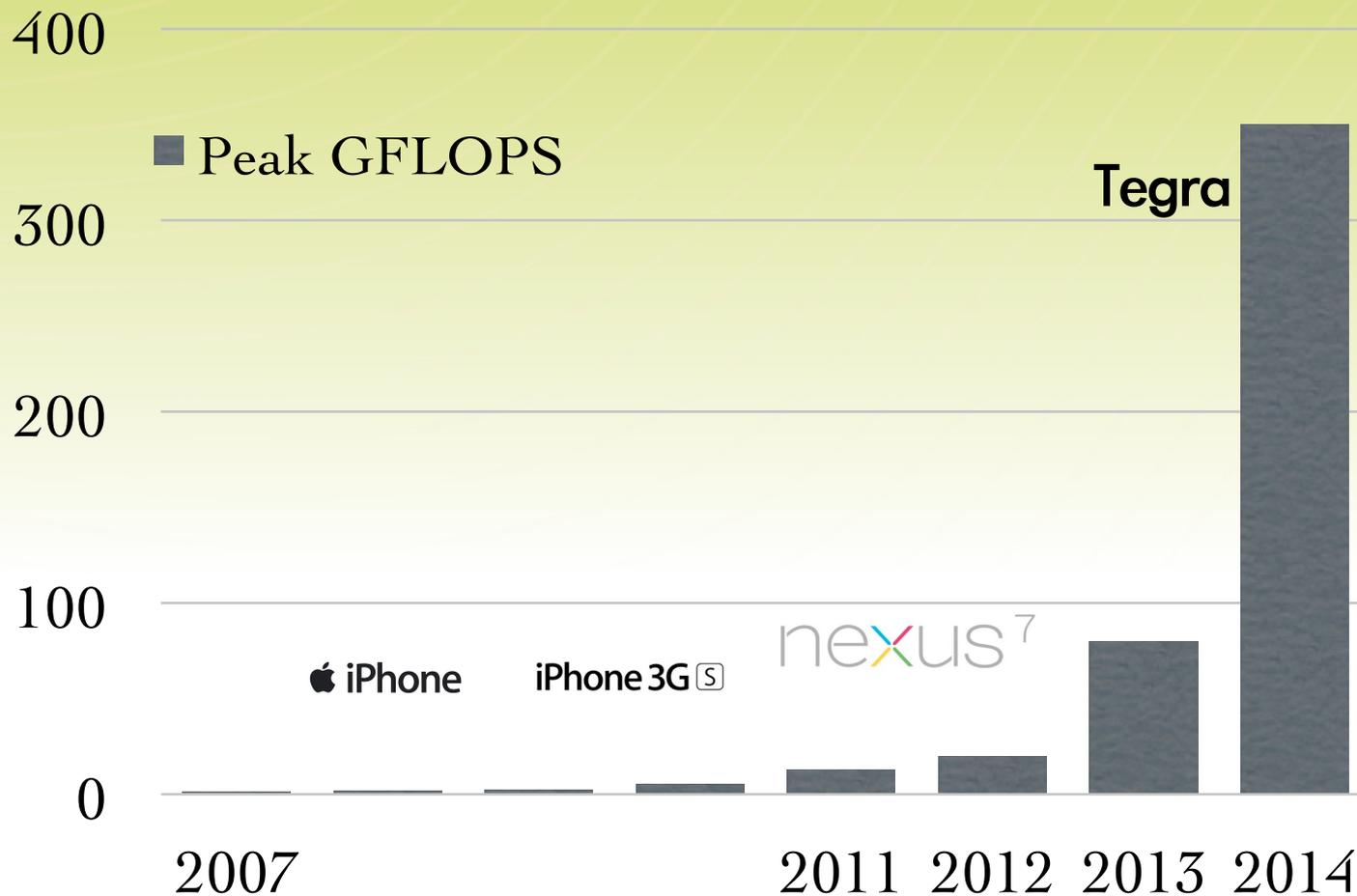


Compass/Gyro

\$x000

Integrated

Mobile Computing Power



Why does this matter?

GPGPU is good for problems that can be mapped to many small parallel independent operations.

Tracking, Masking, Model Fusion, Re-localization, Post-Processing, Visualization.

DotProduct Technology

- Phi.3D Software
 - Real time data quality feedback
 - Real time point cloud registration
 - Append to previously captured data
 - Target workflow
 - Export to industry formats (PTS, PTX, PLY, E-57 (soon))

Technology

○ Hardware

- Off-the-shelf RGBD sensor
 - Structured light depth sensor
 - RGB camera
- Android Tablet
 - 16 or 32 GB
 - USB/WiFi/3G



DotProduct Workflows

- CADWorx and FieldPipe
 - PTS/PTX → Cyclone
- ReCap → AutoCAD >> Revit >> NavisWorks
 - Binary file support
- MicroStation/Pointools (PTS, PTX)
- CloudCompare (free, open source)
 - PTS
- AVEVA LFM (Binary file support)

DotProduct Solution

- Easy to use: designed for construction, O&M
- Handheld – no tripod
- Inexpensive
< \$10k
- Real time



Applications





Use Cases



Use Cases



Use Cases





Thanks

Tom Greaves

tom@dotproduct3d.com

+1 281-724-5756