What’s New in 3D Printing and Additive Manufacturing

NMTC 3D Printing Peer Group
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PADT Inc.
About PADT

• Products and Services for Physical Product Development
• Founded in 1994
• Three Areas of Focus:
  – Simulation, Product Development, 3D Printing
• Services
  – Product Development, Medical Devices, Simulation, 3D Printing, Manufacturing R&D and Consulting
• Sales
  – ANSYS, Stratasys, Flownex, Zeiss, Geomagic, Concept Laser
• Products
  – Support Cleaning Apparatus, CUBE HPC Computers
• 75 Employees
  – Based in Tempe, Arizona
  – Albuquerque NM, Denver CO, Salt Lake City UT, Torrance CA
Top News

• XJet demonstrated its proprietary liquid metal 3D printing technology, known as NanoParticle Jetting
• Carbon unveiled its first commercial CLIP based 3D printer
• Stratasys' introduced multi-material full color PolyJet technology J750 printer.
• HP begins selling Multi Jet Fusion 3D printer
• Nano Dimension ships first DragonFly 2020 PCB 3D printer
• Stratasys debuts Infinite-Build and Robotic Composite 3D printers
• Ultimaker unveils Ultimaker 3
• Markforged introduces powerful Mark X 3D printer for strong carbon fiber reinforced parts
• GE Additive acquired Concept Laser, ARCAM, AP&C powder (Canada), DiSanto Technology (Medical AM)
• Desktop Metal launches the “Studio”, office-friendly metal 3D printing
Some Big Numbers

- Growing number of equipment manufacturers: 49 in 2014 versus 97 in 2016
- Double digit revenue growth: $6.06B in 2016: up 17.4% over 2015
- Record attendance at AMUG: over 1600 registered
- 3DPRINTINGFORBEGINNERS.COM lists 86 3D printing conferences
- GE Additive announced the development of the “Atlas” laser powder bed 3D printer to print parts up to 1000mm x 1000mm x 1000mm
Carbon’s Digital Light Synthesis CLIP Technology

- **M1 Build Volume** Featuring a 5.6" x 3.1" x 12.8" (141mm x 79mm x 326mm) build volume and high resolution 75 µm pixels, the M1 is good for functional prototyping and low volume manufacturing.

- **M2 Printer** With a build volume measuring 7.4" x 4.6" x 12.8" (189mm x 118mm x326mm), high resolution 75 µm pixels.
HP Jet Fusion 3D Printing
DM Desktop

- Up to 24 in³ day
- 50um resolution
- Build size: 12" x 8" x 8"
- Ceramic supports, minimal post processing.
- Uses MIM alloys: +100 metals compatible
- Office friendly metal crayon media
DM Production

- Build speed: 500 in³/hr (+9000 in³ per day)
- Pixel size: <20um in XY
- Build size: 14" x 14" x 14"
- Uses MIM alloys: +100 metals compatible
- Cost effective MIM powder media
Started June 2016, with goals:
- Promote AM and **educate** potential users
- Act as a forum to influence **local regulation**
- Inform progress of national **certification and standards** organizations
- Serve as a rallying point for **collaboration**

- 45 entities in AZ (and growing)
- Monthly meeting at different sites (so far: LAI, ASU, PADT, Intel, UofA. November: Honeywell)
- Contact **dhruv.bhate@padtinc.com** to learn more and/or join
Questions?