

lopoco
low power systems

Team

- **Andrew Sharp, CEO and co-founder.**
Engineer and Manager in the server business since the mid-1980s
- **Peter Theunis, Co-founder and CTO.**
> 10 years of experience in large scale systems deployments
- **Jack Mills, VP of Engineering. (Advisor)**
Architect of the Pentium and Itanium processors at Intel;
former Director of advanced processor research at Intel
- **Mark Brine, CFO. (Advisor, Board member)**
Director of Finance at Cloudera.



Problem



WASTEFUL!

Conventional servers waste more than 1/2
the power they consume

- 100s of millions of \$\$ for large data centers
- Not good for SMBs either

Solution



Lopoco Ultra-efficient servers
1/4 the power

- >50% Reduction in Data center OpEx
- **Lopoco** servers
 - Cool and quiet => more reliable
 - Less power => greater density

lopoco
low power systems

8.1 KWatt Server Rack

Conventional



20 Servers

Lopoco



80 Servers

Irresistible Value Proposition

Savings per year on just electricity costs 12c/kWH

Servers/yr	100	1,000	50,000
Conventional	\$42,500	\$425,000	\$21,250,000
Lopoco	\$10,500	\$105,000	\$5,250,000
Savings	\$32,000	\$320,000	\$16,000,000

Irresistible Value Proposition

Total Savings - Large Data Center 3 year estimated

40k Servers	\$50/watt	\$75/watt
Conventional	\$350,000,000	\$525,000,000
Lopoco	\$100,000,000	\$150,000,000
Savings	\$250,000,000	\$375,000,000

Traction

- Revenue to date: >\$100k [Aug 2013]
- over 60 systems shipped
- 75% repeat customer rate

Validation

**“Most Efficient Server”
certified to date by
Power Assure Corporation**





PAR⁴® - Energy Efficiency Certification

Sample Card Number: PA20130905220238001

Date: 2013-09-05

Machine Specification:

Lopoco LP-4250 LP-4250-6H

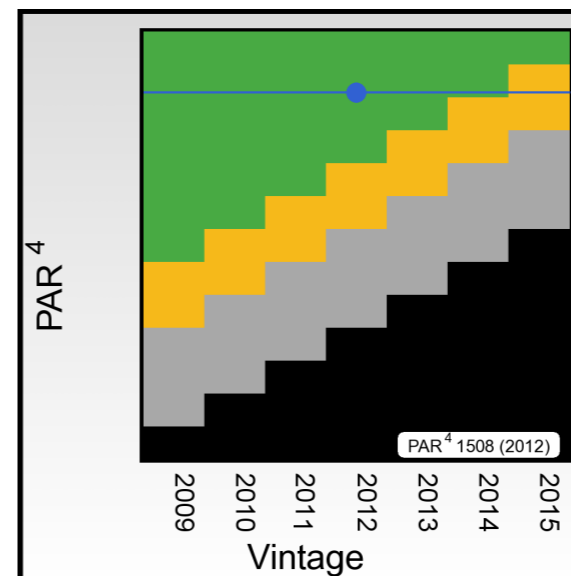
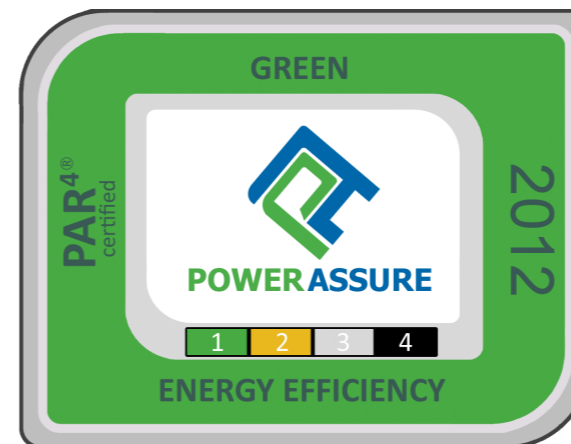
1 intel Xeon E3-1265L V2 @2.5GHz, 4 cores
 2 Kingston 9965525-018.A00LF 4GB @1333MHz
 6 WDC WD10JPVT-00A SATA 1000GB @5400RPM
 1 generic low-power @200W

Results:

Vintage PAR⁴: 1,508
 Vintage Year: 2012
 PAR⁴ Rating: GREEN

Absolute PAR⁴ 2,108

3 Year Cost (Est): \$91.46



Power Consumption Details				
OFF	IDLE	LOADED	PEAK	BOOT TIME
7.489W	26.61W	67.57W	67.57W	84s
121.7V	121.8V	121.9V	121.9V	
0.184A	0.286A	0.583A	0.583A	
0.3PF	0.8PF	0.9PF	0.9PF	





PAR⁴® - Energy Efficiency Certification

Sample Card Number: PA20130905220238001

Date: 2013-09-05

Machine Specification:

Lopoco LP-4250 LP-4250-6H

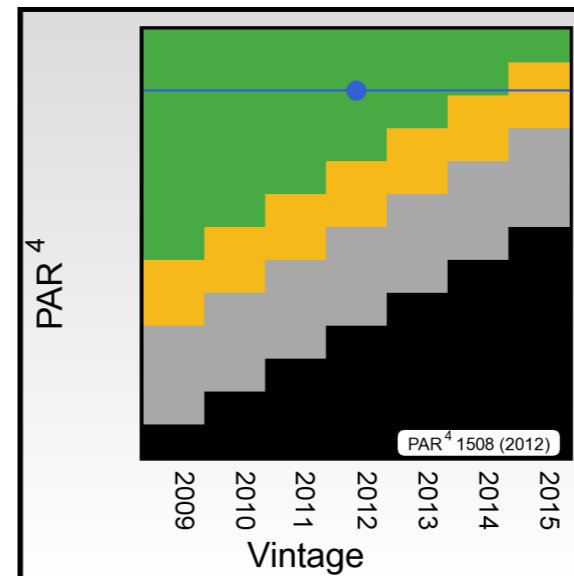
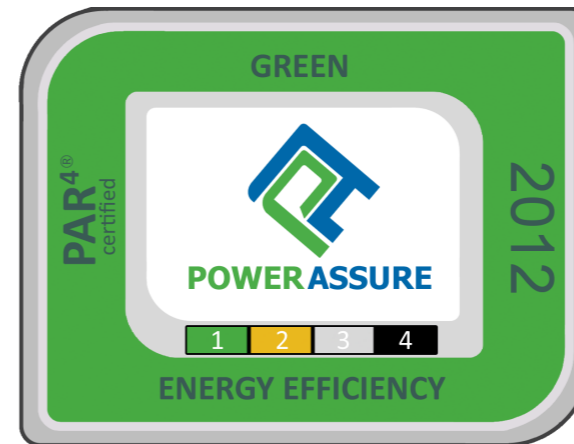
1 intel Xeon E3-1265L V2 @2.5GHz, 4 cores
 2 Kingston 9965525-018.A00LF 4GB @1333MHz
 6 WDC WD10JPVT-00A SATA 1000GB @5400RPM
 1 generic low-power @200W

Results:

Vintage PAR⁴: 1,508
 Vintage Year: 2012
 PAR⁴ Rating: GREEN

Absolute PAR⁴ 2,108

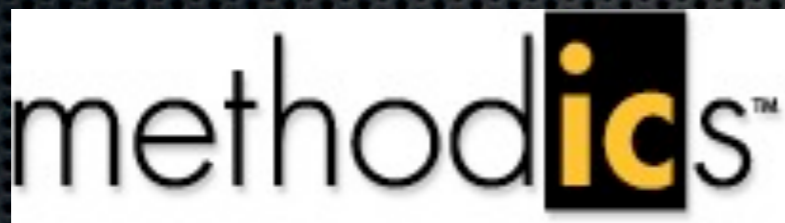
3 Year Cost (Est): \$91.46



Power Consumption Details				
OFF	IDLE	LOADED	PEAK	BOOT TIME
7.489W	26.61W	67.57W	67.57W	84s
121.7V	121.8V	121.9V	121.9V	
0.184A	0.286A	0.583A	0.583A	
0.3PF	0.8PF	0.9PF	0.9PF	



Customers



sanjoseca.gov



Customer Tweets



Datafiniti

The Search Engine for Data

lopoco
low power systems

Competition

SeaMicro (nee AMD), Moonshot, Calxeda, Servergy

Products customers don't want:

- Proprietary hardware
- Custom silicon
- Not efficient OR low power!
- Weird processors, weird form factors, just weird



	SeaMicro	OCP	Calxeda	Servergy	Moon	Lopoco
Low Power						✓
Efficiency Gain	20%	15%	?	?	?	75%
X86	✓	✓			✓	✓
No Custom Silicon		✓				✓
No Custom electronics						✓
64-bit	✓	✓		✓	✓	✓
VM acceleration	✓	✓				✓
Standard Form Factors						✓
ASP	\$1m	\$20k	\$50k	?	\$25k	\$2.5k
Customers	✓	✓	?		?	✓
Shipping	✓	✓	✓	✓	✓	✓
Ultra-high density			✓		✓	

Moon = HP Moonshot

OCP = Open Compute Project

Market

Today



5 years

TAM
\$50+B

TAM
\$100+B

SAM
\$40+B

SAM
\$80+B

SOM
\$16+B

Market Strategy

- Direct sales
- VAR and reseller channels



Exit

- Highly disruptive product: acquisition most likely
- \$300mm revenue/yr in 3 years = \$2bb acquisition valuation
1000 servers \approx \$2.5m
Over 100 NA customers buy in quantities of 1000/month



- **Similar:**
 - \$2bb Cobalt Systems, purchased by Sun in 2000
 - \$335mm Seamicro, purchased by AMD in March
 - \$1bb Wyse Technology (low power desktops) purchased by Dell in August 2012
 - Too many others to list

