The “New” Hemisphere GPS
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PART 1
- Who we are
- History / Milestones
- Markets & Applications
- Product lines

PART 2
- Technology Highlights
WE ARE...

A leading developer and supplier of GPS technology and application solutions for system integrators, OEMs and end users in various precision markets

OUR FOCUS IS...

Market-leading *applications-based integration* of high-accuracy positioning, guidance, and machine control for:

- Precision farming
- Marine
- Mining equipment
• 1990 - Incorporated in 1990 as “Canadian Systems International Inc.” providing differential GPS products to the oil and gas industry
• 1996 - Initial Public Offering on the Toronto Stock Exchange (“TSX”) under the trading symbol “CSY”
• 1999 – Acquired the business assets of Satloc Inc. - moving into the GPS applications space – air and ground guidance for agriculture
• 2005 – Acquired the Outback distribution business
• 2006 – Divested the Fixed Wireless Telephone and Telematics businesses
• 2007 – Name change to Hemisphere GPS Inc. as pure play GPS company. Trading symbol changed to “HEM”
• 2007 – Acquired BEELINE Technologies Pty Ltd (Brisbane, AU).
Our Strengths

- GPS technology design and expertise
- GPS application design and expertise
- Strong market knowledge
- Easy-to-use Products
- Established Distribution and Support Network
- World-Class Outback® Customer Service and Support
- Retail Marketing Expertise
- Crescent® & Eclipse™ technologies offer superior performance, versatility and value
- Beeline GPS/Inertial systems & software platform
- OEM relationships
• 85% of revenues from agriculture
• Market share leader
• Substantial growth opportunities in precision agriculture
• Technology depth; core GPS and applications
• Scalable business model capable of significant profitability
• Projecting record revenue in 2007
• Offices in Calgary (HQ), Kansas, Arizona, Texas and Brisbane, AU
• 250 employees / 60 in Engineering
• Leading after-market supplier
• Market share leader (over 50%)
• Serving large mid-market segment
• Proven experience with OEM partners
• Well recognized and respected brands

• Building OEM relationships
  • CLAAS (Europe)
  • Stara (Brazil)
  • Agco - Beeline
Leader in GPS Compass Technology

Vector Heading Sensor
Key Strategic Objectives

- Applications based integration of positioning, guidance, and machine control (steering / heading / flow control)

- Increase market share in existing vertical markets
  - International expansion
  - New product innovation, market segmentation

- New vertical markets and applications
  - i.e. mining, construction, ports, survey

- Streamline operations for sustained profitability
It’s a huge growth opportunity

- Relatively new market - North American GPS adoption:
  - Autosteering < 5% penetration
  - Guidance < 25% penetration

- Approx 100k new tractors (40+HP) produced last year in the US, with less than 10% GPS-equipped

- 2.5M tractors operational in North America today

- International adoption increasing

- Strong macro agriculture economic factors
  (farmers are making record revenue, but high input costs)
• Market leader in after-market ground guidance systems
• e-Commerce based North American distribution network supported by 350 dealers
• International distribution growth (Southern Hemisphere)
• OEM private label strategy
**Marine**
- Vector - Heading sensor
- Low cost replacement for gyro-compasses
- OEM distribution channels

**Land Information Collection Products**
- Geographic information systems – GIS

**OEM GPS Products**
- Leader in DGPS receivers & antenna’s
- Large OEM customer base

**Expanding Opportunities**
- Mining, Construction and Ports equipment
Air Guidance (Crop dusting)
• Established market
• Market share leader (70%+)

Growth Opportunities
• Forestry, Fire fighting
• Advanced flow control – dry/wet
PART 2

Technology Highlights
The Technology

Positioned for Value

- Survey Grade
- Consumer Grade

Price

$0 - $15,000

Receiver Accuracy

5m to 0m

Eclipse

Crescent
• **Performance** - the most accurate and robust L1 GPS technology available:
  
  – Hemisphere GPS ASIC
  
  – Exclusive techniques for reducing code measurement noise and mitigating multipath signals
  
  – Update rates to 20 Hz
Specifications

- L1 C/A code with carrier phase smoothing
- 12 channels include 2-channel parallel tracking for SBAS
- Accuracy (2D @ 95%):
  - < 60 cm SBAS
  - < 28 cm L-Dif
  - < 2.5 cm RTK
  - < 2.5 m autonomous
- Includes 3 full serial ports, USB, PPS, Event marker, RTCM and NMEA 0183
- Size: 41 x 71 mm

WAAS Competitive Comparison
Hemisphere GPS (red)
Crescent Exclusive Firmware Features

- **COAST™** stability during temporary differential signal outage
- **e-Dif®** (extended Differential) for use where other differential solutions are impractical
- **L-Dif™** (Local Differential) supports decimeter-level accuracy
- Proprietary **RTK** delivers centimeter accuracy and on-the-fly solutions typically less than 5 minutes
Unique Hemisphere GPS IP

- **Performance** – dual-frequency GPS based on Crescent technology for low noise and multipath mitigation
- **Versatile** – supports various differential GPS solutions including RTK, OmniStar HP/XP, SBAS and others
- **Advanced RTK** – includes patented technique to use SBAS satellites (when available) in solution to improve satellite coverage and robustness
- **Flexible and Simple Integration** – wide range of I/O and upgradeable firmware and applications
Eclipse™ GPS Technology

Specifications

• 24 channels include 2-channel parallel tracking for SBAS
• Includes 4 full serial ports, USB Device and Host, PPS, Event marker
• Size: 71 x 109 mm
• L1/L2 C/A, P code with carrier phase (L2C upgradeable)
• Accuracy (2D RMS):
  < 1 cm + 1 ppm RTK
  < 10 cm OmniStar HP
  < 30 cm WAAS
Crescent Vector GPS Compass

- Position and Heading
  - Two Crescent OEM boards on one card
  - Tilt compensator
  - Gyro
  - RoHS compliant
Vector Heading Accuracy

VS100 Heading Accuracy

- 0.5m = ±0.84°, 95%
- 1.0m = ±0.34°, 95%
- 2.0m = ±0.20°, 95%
- 3.0m = ±0.14°, 95%
- 4.0m = ±0.10°, 95%

Accuracy, 95%
Thank You
COAST Technology

• Available on Crescent-based products
  – Maintains accurate solutions for 40 minutes or more after loss of differential signal
Crescent Firmware Options

• e-Dif
  – Generate RTCM corrections
  – Two Modes
  – Mode 1
    • Provides base-station functionality for sub-meter performance
    • Typical application: Local DGPS correction source
  – Mode 2
    • Can work as a rover with no base, but correct to known coordinates for periodic point revisitation
    • Typical application: Soil Sampling
Crescent Firmware Options

- e-Dif
Crescent Firmware Options

• L-Dif
  – 30 cm Real-time navigation, 95%
  – Uses “floating” RTK technique
  – Suitable for distances from base to rover of up to 5km
Crescent Firmware Options

• L1 RTK
  – 2.0 cm Real-time navigation, 95%
  – Uses “fixed” RTK technique
  – Suitable for distances from base to rover of up to 5km
  – Provides L-Dif solutions when L1 RTK solutions are not available
Crescent Vector OEM

- Primary antenna used for reference position
- Heading is location of Secondary antenna with respect to Primary
- Baseline distance between the antennas constrains solution for Secondary antenna to a sphere around the Primary antenna
- Recommended distance between antennas 0.5 – 4.0 meters
Crescent Vector OEM

• Tilt sensor
  – Constrains the solution to a space shaped like a horizontal donut
  – Reduces startup and reacquisition time for heading

• Gyro
  – Defines wedge-shaped location on ring
  – If GPS lock is lost, gyro continues to output heading for up to 3 minutes with 1° accuracy
  – Reduces heading reacquisition times