State of the Satellite Industry Report

June 2007

Sponsored by the SIA

Prepared by Futron Corporation
Study Overview

- Futron Corporation performs the study for SIA
- The study covers four satellite industry segments:
  - Satellite Services
  - Satellite Manufacturing
  - Launch Industry
  - Ground Equipment
- Surveys request revenue information from key companies in the industry
  - Individual responses are kept confidential
- Futron augments surveys with publicly available data and research to derive industry revenues
Satellite Industry Overview

Satellite Manufacturing
- Satellite Manufacturing
- Component and Subsystem Manufacturing

Ground Equipment
- Mobile Terminals
- Gateways
- Control Stations
- VSATs
- DBS Dishes
- Handheld Phones
- DARS Equipment

Satellite Services
- Mobile
  - Mobile Data
  - Mobile Voice
- Fixed
  - Broadband
  - Private Networks
  - Remote Sensing
  - Transponder Agreements
- Broadcasting
  - Satellite Television
  - Satellite Radio

Launch Industry
- Launch Services
- Vehicle Manufacturing
- Component and Subsystem Manufacturing
Surveys are distributed via email

Sent to key players in the following sectors:

- Satellite Services
- Satellite Manufacturing
- Launch Industry
- Ground Equipment

Total of 56 surveys emailed

- Sent to 21 SIA members and 35 non-members
- 25 U.S. and 26 non-U.S. recipients

46% response rate
• **Satellite Manufacturing data**
  - Include manufacturing activity for both commercial and government customers

• **Launch Industry data**
  - Include services provided by private companies for both commercially-owned and government-owned payloads
  - Do not include government launches, such as Shuttle launches or ISS missions

• **All Launch Industry and Satellite Manufacturing revenues are recognized in the year of launch**

• **Revenue is expressed in real-year U.S. dollars (not adjusted for inflation)**
World satellite industry revenues had average annual growth of 10.5% for the period 2001-2006
Satellite Manufacturing and Satellite Services showed the greatest growth: 54% and 19%, respectively.
Satellite Industry Findings

• Worldwide industry revenue growth was 19.5% from 2005 to 2006, compared with a 7.4% increase from 2004 to 2005

• Satellite Services grew approximately 19% from 2005 to 2006, primarily due to growth in satellite television

• Due to an increase in the number of satellites launched, 2006 Satellite Manufacturing revenues grew by more than 50%, compared with a revenue decrease of almost 24% from 2004 to 2005

• Launch services was the only sector that experienced a decline in revenue over 2005, reflecting the retirement of the higher-priced Titan 4B in 2005
World Revenues By Sector

2001
$US64.4B

- Satellite Services: 30%
- Satellite Manufacturing: 15%
- Ground Equipment: 50%
- Launch Industry: 5%

2004
$US82.7B

- Satellite Services: 28%
- Satellite Manufacturing: 12%
- Ground Equipment: 57%
- Launch Industry: 3%

2006
$US106.1B

- Satellite Services: 27%
- Satellite Manufacturing: 11%
- Ground Equipment: 59%
- Launch Industry: 3%
### World Satellite Services Revenue

**Revenue (in Billions $US)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Broadcasting</th>
<th>Mobile</th>
<th>Fixed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>$21.8</td>
<td>$1.3</td>
<td>$9.2</td>
<td>$32.3</td>
</tr>
<tr>
<td>2002</td>
<td>$25.3</td>
<td>$1.3</td>
<td>$9.0</td>
<td>$35.6</td>
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<tr>
<td>2003</td>
<td>$28.5</td>
<td>$1.6</td>
<td>$9.8</td>
<td>$39.8</td>
</tr>
<tr>
<td>2004</td>
<td>$35.6</td>
<td>$1.8</td>
<td>$9.5</td>
<td>$46.9</td>
</tr>
<tr>
<td>2005</td>
<td>$41.0</td>
<td>$1.7</td>
<td>$10.1</td>
<td>$52.8</td>
</tr>
<tr>
<td>2006</td>
<td>$48.5</td>
<td>$2.0</td>
<td>$12.1</td>
<td>$62.6</td>
</tr>
</tbody>
</table>

**services**

- **Broadcasting**
  - Satellite Radio: $0.0, $0.0, $0.1, $0.3, $0.8, $1.6
  - Satellite Television: $21.8, $25.3, $28.4, $35.3, $40.2, $46.9

- **Mobile**: $1.3, $1.3, $1.6, $1.8, $1.7, $2.0

- **Fixed**: $9.2, $9.0, $9.8, $9.5, $10.1, $12.1
  - End-User Broadband: $0.2, $0.2, $0.3, $0.2, $0.3, $0.3
Satellite Services Findings

- Satellite Services growth of 19% in 2006 outpaced 2005 growth of 13%
  - Satellite Television revenues increased 17% globally in 2006, again contributing the largest portion of overall satellite services growth
    - Global satellite TV subscribers grew about 10% over 2005 levels, reaching approximately 89 million worldwide
  - Satellite Radio continued to experience strong growth
    - Revenues doubled from $0.8 billion in 2005 to $1.58 billion in 2006
    - Subscribers grew by 50%—from 9.4 million in 2005 to 14.2 million in 2006
  - Overall Fixed Satellite Services revenue grew by 20% over 2005, while Mobile Satellite Services revenue increased by 18%, driven by growth in voice traffic
Satellite Services Findings (2)

- Overall fixed satellite transponder fill rates grew from 58% in 2004 to 70% by 2007

- Transponder Agreement revenues, which includes contracts for the use of capacity on a full or partial transponder basis, grew 25% in 2006, compared with only 4% growth in 2005

- Revenue for global commercial satellite remote sensing increased approximately 16% from 2005 to 2006, driven by evolving business opportunities:
  - New and continuing military and intelligence imagery contracts
  - Expanding civil and commercial imagery markets, including online mapping services
Satellite Manufacturing Revenues

N.B. - Satellite Manufacturing revenues are recorded in the year the satellite is delivered/launched, not when contract is awarded. World revenue includes US revenue.
Satellite Manufacturing Findings

• Global Satellite Manufacturing revenues in 2006 showed the highest growth rate of all sectors at 54%, led by U.S. revenue growth of 57%
  - 101 payloads were launched in 2006, an increase of 53% over 2005
    ➢ A 76% increase in the number of government payloads accounts for this change
    ➢ The average revenue per payload launched remained stable
• In 2006, government payloads generated 75% of total manufacturing revenues
• Commercial payloads generated just under $3 billion in revenue
Satellite Manufacturing Findings (2)

- Of 101 payloads launched in 2006:
  - U.S. share of manufacturing revenues increased slightly, but remained about 41%
  - Commercial customers accounted for 25%, compared with 31% in 2005

- 2006 saw three more commercial GEO manufacturing orders than in 2005:
  - 5 for Alcatel Alenia Space (now Thales Alenia)
  - 2 for Boeing Satellite Systems
  - 7 for EADS Astrium
  - 1 for LMCSS
  - 3 for Khrunichev
  - 1 for Orbital Sciences Corp.
  - 6 for Space Systems/Loral

Data on manufacturing orders from Friends of Futron 2006 End-of-Year Manufacturing Report
Launch Industry Revenues

N.B. - Launch Industry revenues are recorded in the year the launch occurs, not when contract is awarded.
• In 2006, worldwide launch industry revenue decreased by 10% over 2005
  - 2005 was the final year for higher-priced Titan 4B launches
  - Adjusting prior year figures for these launches, revenues showed a gain of about 23% globally from 2005 to 2006
• The U.S. share of launch industry revenue continued to decline, although the number of U.S. launches increased
  - U.S. launch providers had 37% of global launch revenue in 2006, compared with 50% in 2005 and a high of 66% in 2003
  - The Titan 4B retirement was the driver of this decline
Launch Industry Findings (2)

- Of 41 commercial launches in 2006:
  - The U.S. captured 44%, up from 33% of 39 launches the year before
  - Commercial customers accounted for 44%, compared with 46% in 2005
- 2006 saw two more commercial GEO launch orders than in 2005:
  - 6 for Arianespace
  - 3 for ILS
  - 1 for Lockheed Martin Commercial Launch Services
  - 9 for Sea Launch/Land Launch
World Ground Equipment Revenues

Includes: Gateways, NOCs, Satellite News Gathering equipment, flyaway antennas, VSATs, satellite tv dishes, satellite radios, satellite phones

Revenue (in Billions $US)

Revenue (in Billions $US)

2001 2002 2003 2004 2005 2006
$0  $5  $10  $15  $20  $25  $30

$19.6  $21.0  $21.5  $22.8  $25.2  $28.8

Includes: Gateways, NOCs, Satellite News Gathering equipment, flyaway antennas, VSATs, satellite tv dishes, satellite radios, satellite phones
Ground Equipment Findings

- Overall revenue in the Ground Equipment sector grew 14% over 2005
- Ground Equipment accounts for the second largest share of industry revenues, with the proportion remaining stable over the prior 5 years
- End-user equipment drives revenue growth
  - Prices for consumer service-related hardware (e.g., satellite radio and DTH TV receivers) are increasing as new technology and capabilities are introduced
  - In 2006, global satellite ground equipment revenues were $28.8 billion; by contrast, U.S. cellular handset revenues were $17.0 billion in the same period
End-user terminal statistics reflect relative size of various consumer markets

Satellite-based Digital Multimedia Broadcasting (DMB) is currently only available in limited parts of Asia, although plans are being made for service in other regions.

Direct-to-home (DTH) television terminal numbers are calculated based on subscriber numbers.
Global HDTV Channels

- Despite dramatic growth since 2005, HDTV channels still account for only 2% of all television channels carried via satellite today.
- Over the next five years, HDTV channels are expected to grow another 600%, with average annual growth of 35%.
Satellite Industry Trends

- Robust global industry-wide growth signals real market expansion beyond ‘recovery/rebound’ levels
  - Developed markets show steadily increasing demand for converged applications (e.g., data, video, voice to mobile devices)
  - Continued demand for increased geographic penetration in all markets
  - Increasing requirements for enhanced products/applications in emerging markets
  - Changing regulatory regimes in key markets (e.g., India DTH licenses)
Satellite Industry Trends (2)

- Most industry sectors reflect impact of broader market, or ‘all boats rise with the tide’
  - Significant increases in manufacturing and services revenue
  - Other sectors show stable to slightly increasing trends
  - Launch revenues not indicative of market downturn (i.e., Titan 4B)

- Higher consumer and wireless demand
  - HDTV finally taking off as programming becomes available
  - Backhaul for cellular services fuels growth in voice services in developing markets
  - Mobile Broadband: government applications account for surge in required satellite bandwidth
Key Technology and Service Trends

- Steady growth of hybrid networks and bundled services
  - e.g., cellular backhaul, video/voice/data bundles
- Strategic partnerships tailor offerings for new market segments
  - e.g., DirecTV-Verizon
- Legacy products decline at predictable rates
  - e.g., voice, analog video
- Advanced products and services increase penetration in mature markets, creating new opportunities
  - e.g., IPTV
- Regulatory developments support rapid technical expansion
  - e.g., requirement for ‘local-into-local’ carriage for DTH providers
Key Market Drivers

- Strong global economic climate
- Continued government and military demand and investment
- Accelerated replacement and realignment of major commercial fleets
- Increasing levels of global consumer demand
- Availability and relative ‘affordability’ of capital for investment
Industry Outlook

• Some industry-wide trends continue
  - Accelerated capital investment plans for consolidated commercial operators
  - Government-industry partnerships for critical programs
  - Global appetite for more power, more mobility, more convergence
  - Demand for key technologies, i.e. Broadband, HDTV will reach critical mass in major markets

• Some significant questions remain:
  - The relative US industry position, e.g. launch
  - Evolution of targeted ‘bundling’ strategies for new service
  - Pace of regional market recovery in all sectors
  - Effect of further consolidations and strategic transactions