



**General Overview and Capabilities**

# Introduction

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- Avion Partners, Inc (Avion), a Washington Corporation, was founded in 1999
- Avion is an aviation and aerospace professional services corporation with expertise in:
  - Program Management
  - Supplier Management
  - Systems Engineering
  - Flight Test Support
  - Software Development
  - Product Development, Manufacturing and Certification
  - Business Development

# About Our People

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- ❑ Senior management has over 100 years of Aviation and Aerospace combined experience
- ❑ Avion has assembled a team of world class professional engineers and program managers
- ❑ We are well integrated into the local, regional and national consulting community providing access to a broad talent base that can be deployed as required
- ❑ Our business development professionals have a proven track record of building businesses for new technologies

## Commercial Aircraft Experience and Capabilities

- Boeing, British Airways, THALES, GEC Marconi, Rockwell Collins, DeCrane Aircraft, Tenzing, B/E Aerospace, Midwest Express, Honeywell, IFT, General Dynamics, IMS and others
  - System Engineering
  - Mergers and Acquisitions Studies
  - Technology and Market Studies
  - Executive Staff Role
  - Subcontractor Management
  - New Business Development Support and Sales
  - Engineering and Engineering Management
    - Hardware and Software Development and Certification
    - In-flight Entertainment and other Cabin Systems
    - Avionics servers and networking
    - Avionics systems
    - Air to Ground communications systems including SATCOM
    - Aircraft Power (B787)
    - Fuel Systems (BBJ, B737 and other)
  - Certification Approval Management and Support
    - Level B,C,D,E Software and Hardware Certification
    - FAA, JAA, LBA, EASA
    - STC and PMA processes
    - SFAR 88 and AD compliance
  - Avionics System Integration and Test Labs
  - FAR 145 /EASA 145 Repair Station Management
    - Planning, equipping, staffing and running
    - Implementation of strategies for profitability



## Military Aircraft Experience and Capabilities

- Boeing P8A, 767 Tanker, Northrop B2-A, Rockwell B1-B, F-18, YF-23, F-20, KC-135, 737-700 AEW&C
  - Engineering Management
    - Requirements Development / Management
    - Radar/Navigation and Avionics
    - Environmental Cooling Systems
    - Controls and Displays
    - Aircraft Manufacturing
    - Flight Controls
    - Fuel Systems / Air-to-Air Refueling
  - Mission Control and Flight Test
    - Mission Definition
    - Test Directors
    - Engineering
    - Test Planning / Data Analysis
  - Subcontractor Management
  - Air Vehicle Production and Delivery Management
  - Aircraft Safety Certified
  - System Integration Test Director
  - Iron Bird and Flight Control Lab Engineering
  - USAF Combined Test Force Team



## Business Aviation Experience and Capabilities

- Cabin Management/Entertainment Systems
  - Systems Design
  - Product Development
  - Sales & Marketing
  - Manufacturing
  - Qualification & Certification
  - Aircraft Installation Design
  - Integration with other aircraft systems
  
- Internet and email access
  - Airborne server development and ground networking
  - Integration with on-board avionics systems including SATCOM



# Business Development

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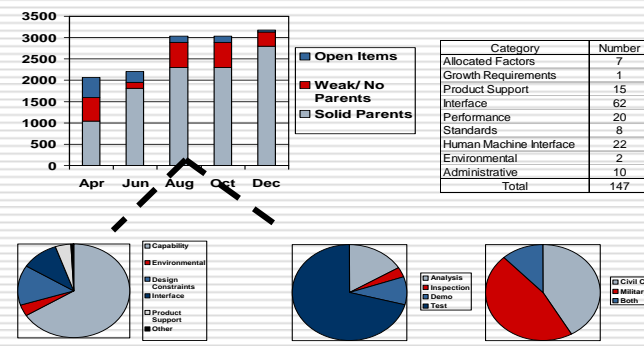
- Technology and Market Studies
  - Help airlines and OEMs to make informed decisions on selecting the appropriate aircraft systems and technologies
  - Expertise in many areas including In-Flight Entertainment, Air-to-Ground Communications, Interiors, Fuel Systems and Avionics
- Marketing and Sales Support
  - Develop product and marketing strategies as well as provide supplemental staffing
  - Identify and negotiate partnering and alliance opportunities
- Mergers and Acquisitions
  - Help identify and evaluate potential M&A opportunities
  - Assess technologies and support for business case
  - Provide guidance and leadership for companies being acquired

## Program Management

- Avion's program management team develops and executes:
  - Project management processes and procedures for complex system development programs based on the Project Management Book of Knowledge (PMBOK) and industry best practices
  - Program schedule/plans for requirements development and compliance
  - Compliance with CFR's, Aviation and industry based requirements
  - Risk mitigation and tracking metrics for program and management review
  - **Supplier Management**

The screenshot shows a software interface with a table of requirements and a diagram of a POS SHIFT display. The table has columns for ID, Description, Req, Derived For Projects, Applicable To Projects, MCS Family, and M. The requirements listed include:
 

- CEM.LLR.421: The 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.





## Systems Engineering

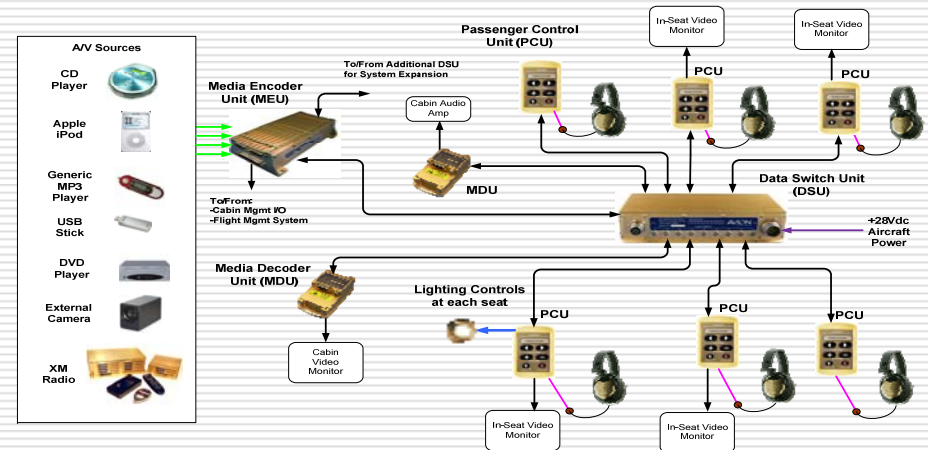
### □ Platforms

- Commercial
  - All standard and wide-body Boeing airplanes
- Business Aviation
  - 737 Next Generation, MD80
  - BBJ, BBJ2, CRJ
- Military
  - 767 Tanker, B1-B, B2, 737 AEWC, P8-A, F-18, YF-23, KC-135



### □ Systems

- In-Flight Entertainment
- Cabin Management
- Avionics
- Power Distribution
- Air-to-Air Refueling
- Auxiliary Fuel Systems
- Radar/Navigation
- Flight Controls
- Propulsion



## Flight Test and Certification

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### □ Services

- Flight Test Plans
- Shipline Support
- Test Readiness Review
- Certification Plans
- BDCO Process



### □ Platforms

- Commercial
- Military



### □ Regulatory Authorities

- FAA
- EASA
- Other national authorities
- NAVAIR Airworthiness



# Best-In-Class Development Team

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- Avion provides one of the best development and integration teams with expertise in:
  - **Systems and software for network based architectures**
  - **Hardware and software systems integration**
  - **Avionics systems and hardware development**
- Members of Avion's product development team average over 15 years experience in related product and systems design
- Relationships with key local firms allow Avion to pull in domain expertise as needed to augment our capabilities

**Avion brings significant capability in leading-edge avionics and networking technology**

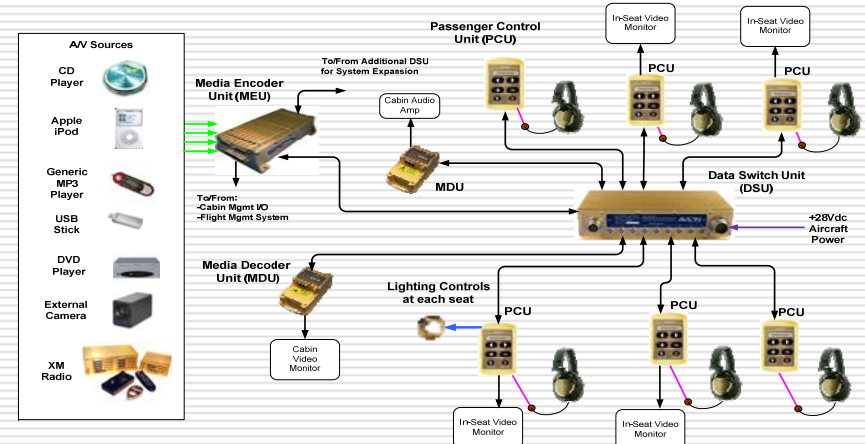
# Software Development and Systems Integration

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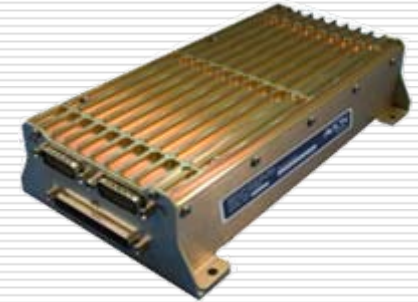
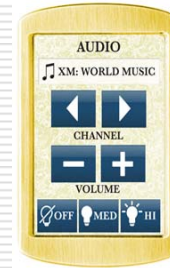
- Avion provides custom solutions using industry best practices specializing in:
  - Embedded device applications
    - C, C++, Java, Ruby, Perl
  - Distributed computing applications
    - Development and integration experience over a wide variety of system architectures
  - Operating system customization
    - **Linux** expertise on multiple computing platforms
  - Graphical User Interfaces
    - Using a variety of toolkits and designs
  - Audio and video distribution
    - Multicast and unicast solutions
  - Hardware/Software integration
    - We make hardware work
    - Experience integrating with several aircraft communication and cabin systems
  - System Level Troubleshooting
    - Extensive lab and on-aircraft experience troubleshooting complex systems and networks

## Development Experience Ultra-CMS System

- ❑ Avion developed, manufactured and supported an “avionics quality” Cabin Management System for use in both fixed and rotary wing executive aircraft
- ❑ System design was proven and installed on several business and VIP aircraft in 2008
- ❑ Qualified to DO-160E
- ❑ System had a significant competitive advantage over other CMS systems
  - Weight
  - Capability
  - Ease of Installation
  - Rapid customization
- ❑ Designed for producibility, reliability, and maintainability
- ❑ Only CMS system offering a version designed specifically for helicopters
- ❑ Six patents pending
- ❑ CMS product line was sold to Rosen Aviation in October 2008



## Product Development Examples 1 of 2



### Data Switch Unit (DSU)

- 9 port 10/100Mbps Ethernet Switch
- Power-Over-Ethernet (POE) provides power (up to 200W) and data to all peripherals
- Provides 200ms of power hold-up for continuous operation during aircraft power interrupts
- 5" x 2.3" x 10" / 4.8 pounds

### Passenger Control Unit (PCU)

- 3.7" VGA Color LCD with touch panel
- Provides user control over all cabin and entertainment systems
- Decodes audio and video for passenger headphones and monitors
- Built-in relays and other controls for cabin systems
- Fully programmable GUI unique for each customer
- Light Weight: 0.8 lbs

### Media Encoder Unit (MEU)

- Encodes 2 Audio/Video sources for delivery over digital network
- 1GHz Celeron processor provides central monitoring and housekeeping
- Direct iPod connection encodes audio and provides system control
- 64-pin I/O connector provides aircraft discretes, A429, RS485, Relays, solid state drivers and other aircraft cabin interfaces
- 4.2" x 2.0" x 8.8" / 3 pounds

**All units are Qualified to DO-160E, in production and certified for flight**

## Product Development Examples 2 of 2



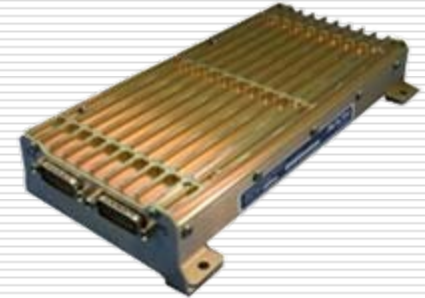
### Audio Multiplexer Unit (AMU)

- Interfaces to existing intercom system providing passengers with entertainment and privacy options
- Pilot Call to flight deck
- Provides graceful fade of the audio entertainment during intercom voice communications
- Input for auxiliary music player
- 3.25" x 1.1" x 4.25" / 0.4lbs



### Media Decoder Unit (MDU)

- Decodes audio and video for cabin monitors and speaker systems
- Audio and video content can be selected via any passenger interface
- Built-in relays and other controls for cabin systems
- Light Weight: 0.8 lbs



### Media eXpansion Unit (MXU)

- Encodes 2 Audio/Video sources for delivery over digital network
- 1GHz Celeron processor provides central monitoring and housekeeping
- Direct iPod connection encodes audio and provides system control
- Provides 40 channels of audio jukebox
- 4.2" x 2.0" x 8.8" / 3 pounds

**All units are Qualified to DO-160E, in production and certified for flight**

## Other Development Examples

- The following represent other products prototyped and/or developed by Avion



**Touchscreen Controller**  
Qualified to DO-160E



**Avionics Blade Server**



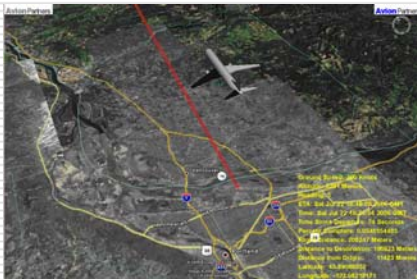
**Triple DVD/CD Deck**



**Wireless Access Point**



**Integrated CMS Solution**  
w/ CPCI Card Cage,  
Attendant Panel and  
Triple DVD/CD Deck



**3-D Moving Map**



# Avion Summary

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- ❑ We generate results and provide solutions to complex program issues and system engineering
- ❑ We understand aircraft and aircraft systems
- ❑ We integrate seamlessly into an organization and provide leadership and/or technical expertise

*Our mission is to propel our customers to success by acting as a catalyst to their organization.*

## Contact Information

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