➔ https://www.academia.edu/87820768/MESS0011_Utilizing_the_ORDA_INED_standard_American_Integrated_Circuit_is_a_company_built_around_STEMM_utilizing_Operations_Research_and_Data

MESS 0015

SPACER**S**: A study in expansion; the demand for semiconductors (part 1) - Satellite Communications with a 3x application for rough calculations on Birkeland Polyphase Superweb[1] satellite expansion

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ABSTRACT

A numericalization and quantization approach to defining the *sheer scale* of growth required in the semiconductor manufacture industry, to supply the Birkeland Polyphase Superweb into reality. Including a brief breakdown of the stages (as a reminder), and list of proposed other areas. Microchip manufacture to reach Stage 5 human society in CtSS approach will require a 1.7B to 679B production mark, far exceeding present supply and demand levels. This can create a massive economic boom, alleviating weakness in the 6th domain (economy) through the power of the mims of the 0th domain (technology). In each part, new areas will be explored to express the growth demand rate, and tighten pre-engineering standards to ORDA:INED expectations.

Keywords: Conquering the Solar System - satellites - microchips - Birkeland Polyphase Superweb - growth

[1] https://www.academia.edu/38560727/Birkeland_Polyphase_Superweb_A_Proposition_for_the_Future_Betterment_of_Mankind_global_defense_interconnection_and_unlimited_power

Introduction

The Birkeland Polyphase Superweb[2] will be composed of various types of satellites. At the early stages, however, they will be primarily communications satellites, designed to study the Sun's electromagnetic field and plasma composition, creating predictive measures for forms of atomic output, cycles, and the like (presuming non-chaotic fusion). Consider it a form of weather forecast, but on a much more precise scale than is presently possible with only a handful of satellites, whose overall purpose is "not early enough" warning system.

These new breeds of modular, pre-engineered, futurizable (with time/cost horizons built-in pre-fab and fab in 100-year increments) satellites will require some things we already know are necessary:

- ☐ Computers and microcontrollers
- ☐ Various forms of sensors
- ☐ Power systems
- ☐ Cooling and protection systems
- ☐ Security
- ☐ Repair mechanisms
- ☐ Communications devices, transceivers, dishes, antennae and the like
- ☐ Internal fiber optics
- ☐ Docking bays for delivery autobots
    - ☐ More controllers
- ☐ Module locations for future power connection add-ons

Some will require more features such as chemistry analytical modules, or transfer devices, power transformers (various), plasma production and manipulation modules, etc.

At each level there are requirements for semiconductors. The satellites also are required to be not just repairable, but in the event of failure, replaceable. So an entire repair and replacement[3] underlying-fabrication (through predictive analytics and AI data "crunching" - on the blockchain using Proof of Power - will enable simulation to turn to fabrication pseudo-on-demand[4]. The AI daisy-chain will parse all of this, and deal with it without human direction, only human moderation and modulation- much like a nuclear power plant.

In addition to the BPS three-stage growth, which the first stage requires (as will be shown) an almost unbelievable amount of growth in manufacturing capability, there has to be a simultaneous growth in the following areas (at minimum, and ignoring terraforming expansionism, which would probably 1,000X or more the entire study.)

- ❖ Deep Mining - for more crustal resources
    - ➢ Robotics
    - ➢ Controllers
    - ➢ Servers

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2 https://www.academia.edu/38560727/Birkeland_Polyphase_Superweb_A_Proposition_for_the_Future_Betterment_of_Mankind_global_defense_interconnection_and_unlimited_power

3 "A relay microchip in a telecommunications satellite has a life expectancy that follows a normal distribution with a mean of 90 months" https://www.numerade.com/ask/question/a-relay-microchip-in-a-telecommunications-satellite-has-a-life-expectancy-that-follows-a-normal-di-2-57303/

4 Somewhat ahead, somewhat "on the fly."

- ➢ Infrastructure
- ➢ Processing
- ➢ Chemical refinery

- ❖ Deep Space Mining
  - ➢ Similar + BPS
- ❖ Space Hauling Industry
- ❖ Aerospace travel Industry
- ❖ Ocean Cities (and cleaning) infrastructure
  - ➢ Key for humanity's practice and mastery of difficult environments, especially for places like Europa or Titan
- ❖ BPS Computerization & Simulation "server/mainframe" infrastructure
- ❖ Radiative and other True Green energy Capture Infrastructure
- ❖ Rail-launch systems
- ❖ Megalopolis Spaceport modular infrastructure related to materials gather, refinement, package, and launch
- ❖ Support infrastructure
- ❖ Manpower systems (various), including schools and non-STEMM workstations
- ❖ STEMM Arenas and various other TIQ increasing endeavors, requiring computers and communications/telephony, A/V, media, etc.
- ❖ Government oversight systems, up to and including brand and message control offices, down to transparency and regulation services
- ❖ Military and industrial cross-threaded systems
  - ➢ consider aerospace, automobile (especially flying versions), and missile cross-threading
  - ➢ Weapons and defense systems
- ❖ Etc.

This is all neglecting the entire tourism and terraforming infrastructure, and focusing solely on the creation of a SPACER[5] society that can a) Conquer the Solar System[6] and b) reach our nearest star with a support network intact (as well as defend from unfriendlies we may find).

Bear in mind that Deep Space Mining is not only of the solar "wind" and asteroids, but of planetoids and specifically gas giants, as well. We have to be capable of collecting atomic mass-energy (ME) on all scales, starting within the Earth, and then after terraforming, off-Earth. Mining is a means to an end, and in some ways an end in and of itself. To build out the full functional BPS, it is vital, not optional:

1. Communications transfer
2. Power (plasma-charge) transfer
3. Chemical (specifically organic and crystalline/mineral) transfer
4. Double Layer shielding (charge gather and re-arrangement)
5. Rearrangement
6. Sub to near light "rail" (ring) launch system for interstellar launch
7. Thunderbolt (defense) generation[7]

[5] https://sites.google.com/view/epemcgateway/epemc/spacers
[6] https://www.academia.edu/62757621/Conquering_the_Solar_System
[7] To be clear this is the optimal order of development, as the VTG technology will be far more robust after the previous technologies listed are capable of that type of power provision. However, the author believes the VTG will be developed first, in a smaller or lighter form, either through direct Perattian Thunderbolt tech, or simply - haphazardly - using nuclear devices in space to instigate the cascades NASA has already simulated. If the Van Allen Belts discharge, and an ability to

8. Interstellar communications (via the Sun's transistor properties), utilizing the analog SSEC as a radio

When looking across this technology stack, and development model, the author therefore must conclude:

➔ The key to getting a handle on the bottlenecks (ORDA) and scaling (AIM) is to start with computerization and computational power - and that means **semiconductor manufacture**.

The CubeSat/SatComm model

Assumptions to this techstack[8] will be placed into the spreadsheet directly, to keep this document to a minimum. They are based upon best, presently known, conditions and technology & engineering constraints (2022) of a Phase 1 (of Stage 1) SPACER-starved civilization that has barely begun to understand the Universe[9].

Table 1 - Looking at Growth Demands created by the BPS alone; Potentially 1000+ years of growth

Current Grid	**Radius (mi)**	0.1000179888	**#sat/mi**		**Volume (cu mi)**	1.93E-07	**#sat/mi^3**	
2224	22236	% incr	# planar	Delta	1.15E+10	% incr	# spherical	Delta
BPS V1 (stage 1-5)	3.40E+08	1526703.38%	**3.40E+07**	3.40E+07	8.50E+13	739155%	8.50E+12	8.50E+12
BPS V2 (stage 5)	4.43E+08	30.40%	7.82E+07	4.43E+07	1.16E+14	36.05%	2.01E+13	1.16E+13
BPS V3 (stage 6)	8.93E+08	101.63%	1.68E+08	8.93E+07	9.48E+14	719.93%	1.15E+14	9.49E+13
BPS V4 (stage 7)	1.80E+09	102.17%	3.48E+08	1.80E+08	7.84E+15	726.26%	8.99E+14	7.84E+14
BPS V5 (stage 8-9)	2.75E+09	52.48%	6.23E+08	2.75E+08	2.78E+16	254.49%	3.68E+15	2.78E+15
BPS V6 (stage 10)	3.98E+09	44.66%	***1.02E+09***	3.98E+08	8.41E+16	202.75%	1.21E+16	8.41E+15

Looking first at the satellite/BPS data, comparing our trickle now of 989 SpaceX per annum and 22k total in space at a small 22k mile radius… we see an emerging expectation of trying to get to 1.2 billion satellites - as a minimum[10] - with a 1.9B X multiplication … with a goal set of 50 years just for aggression's sake. This represents a massive planar expansion, and to do this to go to 678k per annum; in volumetric growth rather than planar it'd be 170B made each year to get to Stage 1 if we want 8.5 TRILLION satellites to fill the sphere around the entire solar system from Mercury to Jupiter at present distribution gaps. Which may be too far, or too tight a gap (as needed). More research is necessary.

As for the value that this can create, in 2022 $USD as of this writing, Hardin estimates it at 1.7 billion chips demanded just for the BPS V1 demand alone. Considering all of the above other issues, and factoring in replacements every 90 months, over 100 years time alone, we are looking at a 13.3 x 130% x 10 (industrial

control this - and build an Elysium - supercede, then evil will prevail, and mankind will not exit Stage 1, in the author's opinion.

[8] SPACERS techstack (with CEO of americanintegratedcircuit.com, A. Hardin)

[9] And already has so much wrong. Without the LHC and James Webb Telescope, the PEMC takeover would continue to be hampered by the Peer Review Cult, Dark Universe nonsense, and mathemagic; not to mention big egos and famesters. Oh, and "critics" that are a literal dead weight anchor on Human Momentum.

[10] 34 million as an absolute minimum, 12.1 quadrillion at a maximum

demand) x 115% (waste) x 3 (duplication of effort) x 2 (resupply) or *1.3*10*1.15*3*2 = 399.7x growth, that's 400% or roughly 679B microchips. There could be another +/-10% due to various increases in dependence on semiconductor-controlled sensors, etc. Much more work is required, including in pre-engineering the replacement, and in pre-engineering the proposed Disaster Rescue and Prevention (environmental protection) industry, looking at sunsetting issues and other growth and modular factors. Atoms should be respectfully consumed, re-used, recycled, and conserved where possible/necessary!

Market Demands vs. Shortages and Supply Chain Issues

The acknowledged (market data research) facts are:

- "In 2020, the economic impact of the semiconductor industry on the United States' gross domestic product (GDP) was a total of 246.4 billion U.S. dollars."[11]
  - "The U.S. semiconductor industry is substantial, directly contributing $246.4 billion to U.S. GDP and directly employing over 277,000 workers in 2020."[12]
  - "The U.S. semiconductor industry doubled its share of gross domestic product. (GDP) between 1987 and 2011."[13]
- "While semiconductors account for only 0.3% of US output, they are an important production input to 12% of GDP… While semiconductors account for only 0.3% of US output, they are an important production input to 12% of GDP," Hill said, noting that the shortage could cut auto production by 2% to 6% this year."[14]
- "Semiconductor IP Market Size To Reach USD 12.3 Billion at a CAGR of 10.20% by 2030 - Report by Market Research Future (MRFR)"[15]
- "The global semiconductor industry is poised for a decade of growth and is projected to become a trillion-dollar industry by 2030."[16]
- "Report Overview. The global silicon carbide market size was valued at USD 2.96 billion in 2021 and is anticipated to accelerate at a compound annual growth rate (CAGR) of 11.7% from 2022 to 2030."[17]
- "The global Silicon Tetrachloride Market is expected to witness a CAGR of 4.5% from 2022 to 2027."[18]

As anyone can see, there is a market increase, a significant uptick, in demand both now and in the future. So the issue here is threefold:

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[11] https://www.statista.com/statistics/1237993/united-states-semiconductor-industry-gdp-impact-by-channel/
[12] https://www.semiconductors.org/chipping-in-sia-jobs-report/
[13] https://www.semiconductors.org/wp-content/uploads/2018/06/SIA-White-Paper-on-Value-Added-and-Economic-Impact.pdf
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[16] https://www.mckinsey.com/industries/semiconductors/our-insights/the-semiconductor-decade-a-trillion-dollar-industry
[17] https://www.grandviewresearch.com/industry-analysis/silicon-carbide-market#:~:text=Report%20Overview,11.7%25%20from%202022%20to%202030.
[18] https://www.globenewswire.com/news-release/2022/02/08/2381107/0/en/Silicon-Tetrachloride-Market-is-reaching-a-valuation-of-US-2-846-0-Million-by-2027-Comprehensive-Research-Report-by-FMI.html

1. Supply Chain Logistics (hence an ORDA standard[19])
2. Computational demand - because technology is the 0th domain of warfare and civilization - will create an arms race and run away cycle (INED::SS standard)
3. Environmentally friendly, open market supply will be low so prices will increase, especially pre-Deep Mining (FREETH + AIM standards)

Therefore, we must expect that growth should be encouraged in certain industries, particularly related to Silicon Carbide ceramics, but also anything within the semiconductor and computational space, such as smaller, multi-beam manufacture, large wafers, crystal and other memory systems, nano-carbon, carbon sequestration (non-forest origin), and replacing the petroleum source (to protect it for medical plastics) with other plant-based oils.[20]

Supply Chain Woes

Strategically, the West has become overly dependent on the East for raw materials, rare earth minerals, and semiconductor production. This production should not cease to be, but the economy (6th domain) has to morph into a Plasma-based "Dual Layer Economy"[21] that enables robust production worldwide without the "world-ending" tension threat created under the current *currency* systems. This is covered elsewhere.

The supply chain must become partially decoupled and re-wired, so that the USA ® is independent from the Chussian (New Axis)[22] system, now that there are two monetary wiring systems, in the first place. This isn't to encourage war, at least from the author, but to encourage bipolar configuration and cooperational-competitive evolution. That will force the West to raise its standards, and the East to rethink its values. Where they meet, literally in the middle, such as the Middle East, Asia Minor, Central Asia, and Africa will become the breeding ground for a new, high tech, SPACER future.

This will encourage an increase of TIQ[23] in 2nd and 3rd world countries, leading them out of impoverishment while the West refunds itself and the East figures out how to not destroy everything through unfettered growth and greed. In the end, the rejiggering of the global supply chain will be good for all concerned, but tempers will flare in the deadening portion of Phase 1 of Stage 1, as we head to a Phase 2 world. In Phase 2, we will see increased automation, and probably increased jadedness and disillusion, and maybe a shrinkage in manpower (literally the population). But long term the reconfiguration, and birth of entirely new spaceport cities and underwater cities and deep mine complexes and even a Moonbase (1st attempt) will lead towards a greater need (and hopefully respect) for each other. Of course this will depend on IQ, EQ, and TIQ assets being maximally utilized, and a decrease in materialistic (and leisure filled) consumption, vapidness, shallow callowness, and selfish greed so prevalent in "late-stage capitalism"

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[19] https://www.academia.edu/87578071/MESS0007_MIMS_2_101_The_ORDA_Standard

[20] Please note that the American Integrated Circuit facility will be housed underground… and plant growth can happen above ground.

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[22] https://www.academia.edu/51022722/Winning_the_New_Cold_War_World_War_3

[23] Technical Intelligence Quotient. As opposed to IQ or Emotional Quotient (EQ) https://www.academia.edu/50652106/China_vs_the_World_IQ_as_a_Strategic_Asset_a_graphical_comparison

Conclusion

This is only the first part in a series trying to guesstimate the market growth, value, and strategic allocation of semiconductors, silicon, and microchips, regarding the computational and ORDA portion of the SPACER movement in computerization at the Next^{Next} level. In the remaining parts, a greater refinement of the model will appear alongside considerations of other technologies and industrialized production, etc. All assumptions are those of the author, or Mr. Hardin, CEO of AIC, and do not reflect the opinions or any limitations upon the beliefs of artists, writers, scientists, NASA, or the like surrounding the current SPACER phases and stage 1 in general. Mankind's present limitations are trends, which do not dictate future events though they may indicate forward momentum or propensity. Nor does it reflect the sole opinion at AIC, Inc.

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