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Semiconductors and National Security: The CHIPS Challenge
Pat Gelsinger, CEO, Intel
Penny Pritzker, Founder and Chairman, PSP Partners, and 38th U.S. Secretary of Commerce
***Moderator*: Steve Clemons, Founding Editor at Large, Semafor**

Steve Clemons
Thank you very much good to be with you. I'm Steve Clemons with Semafor and we're going to start this session. So join us leave the room if you're talking, sit down and listen and participate if you're here with us. Let me just start out and I want to thank the Financial Times because they really done all the work that I needed done. If you see it Demetri Sevastopulo has a headline article in this morning's FT it says tech remains core battle with Beijing. That basically echoes a similar theme a week ago in the New York Times, an act of war inside America silicon blockade against China, China has come up in nearly every session at Semafor it is out there. And the theme, if you haven't heard it, enough of this year's Aspen security forum is to think over the horizon to think around the corner. And I want to start this with just a tiny bit of history not too much. So in short form, Secretary Pritzker, you know, a dozen years ago or so you began to say guess what, we may have a problem with American competitiveness. We may have a concern in this. And so I just want to kind of lay out 10, 12 years ago, what were you seeing over the horizon and how worried were you?

Penny Pritzker
Well, in 2015, we started to really appreciate the fact that semiconductor manufacturing was basically not in the United States. We were developing chips we were way ahead

Steve Clemons
Where was Intel?

Penny Pritzker
Well, you know, unfortunately for Intel, Pat was not their CEO at the time. He and I had a an incredible conversation this morning about his journey. And and frankly, I will say this, I mean, for those of you in the room who don't know, pat, pat is basically the person who brought you Wi Fi, the USB port, and the core processor of Intel. So he's the true technologist. Here on the stage, but he was not an Intel at the time, and Intel was frankly, falling behind. And so it became obvious. Bruce Andrews who's here, who was my deputy, he and I really saw this as a huge problem and began to sound the alarm.

Steve Clemons
So Pat, the alarm that sounded it's taken a long time so when alarm sound it's sort of not usually a decade before you get really but there was a decade and I just want to start out we passed the CHIPS act about a year ago, a little over a year ago where are we right now in that give our audience a quick

primer. But at the same time, I just want to get a sense of is it enough given the scale of what I think we've seen over the horizon, which was that America was becoming a fading star in the chips world.

Pat Gelsinger
Yeah, you know, I'd like to go back to you with more than a decade. Right and say this began 30 years ago, right where 30 years ago, the US and EU were about 80% of worldwide manufacturing, right, and Asia 20% and all the leadership stuff happened here. Now we're 20% and 80% in Asia and continuing to decline and you know, so this is just you know, what aspect of your life is not becoming more digital. Everything, right, you know, your healthcare, your social, your financial, everything. You're like that right? And right now, this is why it's centered largely in Asia, you know, bit in Japan, Korea, heavily in Taiwan, you know, 100 kilometers from Chinese soil. This is a precarious situation. And you know, every aspect of advanced AI etc. This is critical to our not only economic future, but our national security as well. So with that in mind, and you know, the chips act and this was under way before I came into it, but let's say I've heard more shoe leather to get this done, than any CEO ever should. Right? But we pass the most important piece of industrial policy since World War Two. This is seminal, right the US stepping forward. In this way it led to 52 billion and also investment tax credit, which probably is 25 to 30 billion more so about 80 billion for it and I'm very happy to announce that we just submitted to the CPO, the CHIPS program office under the Department of Commerce, our first proposal for funding went in on Monday night,

Steve Clemons
To to beat this this meeting here.

Pat Gelsinger
Absolutely, absolutely. I knew I was gonna see you. I wanted to have some accountability. So alright, so we're here we got the first one and and that will be the first of four submissions that we'll make that was for Arizona campus. We have one for New Mexico for Ohio, the big project in Ohio and Oregon. And then, you know, so it's just getting underway and it was both subsidizing of manufacturing to make us competitive with Asia 30 to 40% more expensive to do that in the US. So the chip sack sort of levels the playing field to make our investments in this space competitive in the worldwide sense, but also, you know, medium term investments in industry formation, supply chain rebuilding in the US and also long term research. We want to stay ahead for the long term. So I'll say the benefits in this I think are just getting underway, but since the act was underway, you'll five major projects have been announced my Arizona project my Ohio project TSMC and Arizona, Samsung in Texas, and Micron in New York plus multiple small projects as well. So I'll say so far looking promising and hopefully and I just thought Gina Raimondo on Monday. You don't mind me to do this money was built into my business plan for this year.

Steve Clemons
Am I hearing you pat be a selfless American saying we want the chips at the subsidized a lot of foreign competition coming into the US market and you don't care who makes it including Intel, or does Intel have an edge in this?

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Pat Gelsinger
Well, as I as I very happily will say, you know, I believe is Samsung and TSMC and others are building the US we should be happy about that. I just want more. Right? Because I do all my you know, all my central r&d is done here. Most of their r&d is done overseas. So I believe we should benefit more, you know, but I do believe that, hey, if I migrate their manufacturing years, well, that's good for the US as good as the r&d and the manufacturing are done here. And I believe the chips act is designed to encourage that whole range of capabilities here.

Steve Clemons
Penny, you've been working for many years on helping folks think through what the pillars of competitiveness are. And it's really beyond just chips. It's the science ecosystem is workforce development. I remember when I worked for Jeff Bingaman in New Mexico and we were looking into that was an Intel fab came into Rio Rancho New Mexico, it became the brain drain opportunity and problem for the state it sucked up everybody with talent and and so it created interesting thing and recreate it really created a lot of workforce issues. But there's another dimension that I want to ask you to talk about. Because Pat Gelsinger has said it is that a lot of the errors that we made in this country are made in the case of Intel, by his predecessors, by predecessors and CEOs who were not engineers that did not understand the space. So I want to ask him that. Like how bad his CEO predecessors were? But but when you get to this issue of the ecosystem of hearing competitiveness, what are we missing and and and what do we still have yet to do?

Penny Pritzker
Well, let's start and put in perspective as to what's been accomplished which is the passing of the infrastructure act the chips act, and then the inflation reduction act, all of which have forms of industrial policy. I mean, So this is becomes what's really important going forward, which is execution, execution, execution, and that's high on the minds of Gina Raimondo of Jeff Zeints in the White House. They recognize that the country has been given an enormous opportunity, and now we have to take advantage of it. I think the second point that you made is we need to really focus on training our workforce and we need to do so at scale. Our workforce needs to be ready to embrace not just chip fabs, but AI, and the skill sets that we're going to need going forward are really an evolution from where we are today and I don't think our schooling and our training is up to snuff. At scale. I think the other thing that needs to be addressed in terms of our ecosystem is our broken immigration system. I mean, this is crazy. You know, there was a slowdown in the economy, the tech, large tech companies do layoffs. And that's enormous number of h1 B visa recipients who lose their jobs. They had 60 days to get a job in the United States, otherwise they lose their visa to the United States. These are talented people we do not have otherwise in the country. What does Canada do? Their attitude is Hey, come here, set up shop here. We'd love to have you. What happens is as rehiring is continuing to go on these folks are all getting good jobs and so that our immigration system is a big part of our competitiveness. And then I would say economic regional economic development. We need to get it right. There's good money in in the bills that we just talked about. But you need extraordinary planning in order to actually get it right. And I'll

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just I'll talk about Chicago. Chicago is going after, you know, really, what's the next generation of material science that that we're going to need as silicon runs its course, if you will, Chicago's going after not just the manufacturing of that, not just the r&d of that, but also the skills training that's required. We need and that we have an authentic right to win in that area because we have Fermilab because we have argun but also because we had the University of Chicago and the University of Illinois, which have particular strengths in this area. My point is, that's the strength in Chicago. There are different strengths in other parts of our country that need to be built upon and we need to be smart and we need to incent that kind of collaboration. You know, that requires both local government, state government, federal government, also the private sector, very much involved. We need to do all of these things in order to remain competitive.

Steve Clemons
Thank you Pat I talked to to some of the major Korean semiconductor players that are going to come United States and they tell me that their challenge is a human one. Not a might not have been machines, that that if you look at a fab plan is Korea and you look at the processes involved with a chip which you know, well about 650 steps for tiny itty bitty little step in a little little chip some some extraordinary number of steps and everything is measured in these fat fab plans, distances and and these are the only way they can do it and survive in the US is to completely mimic and exactly copy and exactly train the same people to do the same tasks. And what Penny just said about h1 B's an integration makes it nearly impossible to get that flow of people that can work in one place over here. Is that a problem for Intel is that problem with the industry?

Pat Gelsinger
It's certainly less of a problem for us because we've been doing it here. You know, we don't have to operate in a globally distributed I operate in Israel. I operate in Ireland, or multiple locations in the US and Malaysia have a simpler test and China's we operate with a distributed way. Both TSMC and Samsung essentially have one hub. They've never operated in a distributed way they don't know how to move people around. You know, that said, I do believe strongly that every time we graduate anybody with a advanced degree in the US, it should come stapled with the green card. We want the best the brightest of the planet to emigrate and be part of this great promise of the American system as well. And immigration policy I think, you know, so backward you know, we we view it as you know, somebody swimming across the Rio Grande as opposed to the best and brightest, right? You know this to be as horrific.

Steve Clemons
So let me ask you about TSMC for a minute and as I understand it, they make most of the highest performance chips in the world. They are the golden goose. They live in a complicated neighborhood. We are trying through the chips act to bring a lot that kind of capacity United States for national security reasons, but future innovation reasons, but it's still there and they're dominant. I asked former Trump National Security Adviser Robert O'Neill. What would happen to China invading Taiwan? Wouldn't they get all the chips? And O'Neill responded he says without going into some of this stuff. I know. It's kind of

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like Churchill shedding tears in the parliament, telling people he was so sorry he had to bomb the French fleet not to fall in Nazi hands. And what he was intimating is that TSMC would not be left intact if China were to do this. So it Do we have plans, your knowledge to basically wipe out the Taiwan ship industry, because we are talking about war and national security and high states but I mean you must be dealt in on that somehow.

Pat Gelsinger
So I will not answer that question for all sorts of reasons. But let me let me frame it a little bit more broadly. The first one is, you know, we laid out I laid out a very audacious plan to catch up to TSMC by 2025. We believe that we are building the best transistors again, best conductors in the world, you know, we are rapidly expanding our manufacturing so that your first statement of that building the majority of leaving as chips as the longer true, making decent progress, you know, to accomplish that because the best thing that we can do is have a more balanced and resilient supply chain. As we said already I want them to build more in the US. I think we should insist they start doing r&d in the US as well, not just in Taiwan so that they are more resilient as well. But we are acutely dependent on Taiwan today. Right so many industries are as well. it's be called the silicon shield around it. And with that, so we have a problem. And that is why the chips act and these investments are so critical. We need to move rapidly to create more balance in Europe needs to do so as well. We just announced our position in Germany and Magdeburg. We need to partner with our allies. In Europe. You know the I mean the Dutch recently most critically in Japan as well for export policy of the key technologies here and we literally do not have time to waste in this regard.

Steve Clemons
Penny I know that you and Bruce Andrews who's now at Intel former deputy secretary sort of hatched so much of what we're seeing today on industrial policy, but I can't find a CEO out there in the tech area that isn't really impressed with Gina Raimondo and how she's taking what you build and executing and it raises this interesting question I have never thought or seen the Department of Commerce, the Hoover Building matters so much in America's economic equation. It's always been, you know, I think before us sort of the joke job in the administration. What are the implications of the Department of Commerce becoming essentially part of the military and national security, decision making and key economic issues? And, and, and I guess, are the other agencies ready to see their power to the rise of, of Raimundo?

Penny Pritzker
Well, a couple of things. First of all, I think Secretary remonda is doing a terrific job. So you and I are both in her fan club. And one of the things I think she does extremely well is reaching out and engaging with the private sector, which is extremely important. I don't see this as a zero sum game. I you know, one of the things that Bruce and I tried to do during our time in government was to really help the national security team and the national economic team in the White House, appreciate that there's another arrow in our quiver as a country and that's our commercial presence globally. And while our government presence is absolutely essential, and we see what happens when we're off the playing field, which we

were for a period of three or four years, it's extremely dangerous to the world stability. But in addition to our government presence, we have good American companies are doing business all over the world. And I submit the leaders of those companies for the most part are patriots. And they are part of the American presence around the world. And we and I had leaders of countries I you know, work with 37, 38 different countries. Say you know, we want American companies here because we have set a standard of behavior. So to me, I think that, you know, seeing the role of the Department of Commerce, as being in addition to not as a replacement or having sharp elbows, opposed to the Department of State are the Department of Defense or the Department of Treasury is a positive for the federal government is a positive for America is a positive for the world.

Steve Clemons
Thank you, you know, last 10 minutes, and I want to hopefully get time for the audience, but I also want to get back to China. You said it's not a zero sum. game in a lot of these issues. Ed Luce of the Financial Times. I read his piece said it is a zero sum game with China on a lot of these fronts. I'm going to be interviewing the Chinese ambassador here on the stage in about an hour. And I'm interested in the in the side of of, how do you get China right and Representative Mike Gallagher, who chairs the select committee on competition with the China the central China, CCP was a little frustrated in his meeting with you and the CEO of Qualcomm and the CEO of Nvidia saying, Hey, we just did all this stuff to help the industry compete with China beat up on China. And now you're coming back and say don't beat up too much. So how do you get is it is a Goldilocks thing with China?

Pat Gelsinger
Well, you know, first, any reporting that the three of us met with Gallagher is false. We didn't Oh, interesting. Yeah. So you know, we had meetings with Raimondo Blinkdcn with Jake Sullivan. When we were together in DC i

Steve Clemons
So you we're not trying to get the committee to go later on?

Pat Gelsinger
We did communicate a very important message, I think on China though, right? Right now what China represents 25 to 30% of semiconductor exports, right? If I had 25 or 30%, less market, I need to build less factories. Right. You know, we believe we want to maximize our exports to the world. We want to maximize solid fish, not fishing rods, right you know, across the world. Including China. You can't walk away from 25 to 30%, and the fastest growing market in the world and expect that you remain funding the r&d in the manufacturing cycle that we've released. We want to maximize and right now semiconductors are the number two exports in China behind that strategic category of soybeans. Right and there's not even a close number three, you know, this is strategic to our future. We have to keep funding the r&d, right the manufacturing, etc. That goes in place. We also say hey, we agree on the priority of national security. But as Jake Sullivan said, high walls small garden today, we have over 1000 companies on the Entity List, many of which have nothing to do with national security, right and nothing

to do with security concerns in China. You know, and if I may, I did bring one little tidbit along around to show off a little bit. Right, you know, these are some of our next generation chips here. You know, this is this was called Meteor light. Pretty much anyway

Steve Clemons
Do I get one after?

Pat Gelsinger
Oh sure, I'll give this one to you.

Steve Clemons
How much is that worth?

Pat Gelsinger
This will be a few 100 dollars okay, when we start shipping it but this is 45 billion transistors on this three different pieces of silicon, you know, that are part of this now. Advanced packaging technologies. We'll be shipping this volume later this year. This is really cool. And it takes a lot of r&d and manufacturing. The new facility that I build in Ohio, I'll have $30 billion invested before I get a penny of revenue associated with these are extraordinary. You know, we have the largest construction projects on the planet to build the smallest things that have ever been built. I put 100 transistors in the width of what of your hairs. But even better than that, is those technologies then give us the opportunity to do things like this, right? I'm holding a 12 qubit quantum computer so you know, do you think we should lead in quantum computing? Of course you do. Right? You know, quantum computing will likely render all traditional security algorithms meaningless. Do you think that's important for us to lead in? The only reason I get to do this is because I have a $4 billion investment stream of r&d that I didn't do it for 30 years to build the core technologies that allowed me to build qubits in silicon, right? Go for this. And if this works, and by the way, you know, here, I'll let you hold it, Steve. The only problem is to actually make it operational. The only problem is to make it operational. I have to take the two below one Kelvin. So we have this little cooler here and get it close to absolute zero. And then the control circuit operates at a balmy you know, two degrees kelvin. But you know, if this works, right? I know how to manufacture silicon at scale. Right, right. It's full of qubits. Your own estimates are we probably need a million cubits to create the world's first quantum supremacy computer. These things are critical to our future. We need to keep this long term research, manufacturing and economic cycle working. That's why the access to the China market is so important. And any policies that diminish that access, simply weaken our position to invest in manufacturing and r&d in the US,

Steve Clemons
China, Penny, have we gone too far in our China rhetoric?

Penny Pritzker

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Well, I think it's the good news is is that you've seen over the last month or four or five weeks you you've seen Secretary Blakean spend time in China. You've seen Secretary Yellen there, and you've just seen Secretary Kerry there for a climate engagement. I think that, you know, I'll just step back from it when I went into government. I didn't really understand what all these dialogues were about and why so many dialogues and doesn't seem like it come out with a deal that makes any sense at the end. But what you come to appreciate is how important engagement is. And while yes, we're in a competition with China, and there's also areas for us to cooperate and we need to if you're not talking, chances are your chance of war is going up. And so I'm I'm for engagement. I think it's extremely important.

Steve Clemons
I mess up when we're in here for you, Pat, you're an Andy Grove Acolyte. I knew Andy Grove I interviewed him in the for, for his brilliant crazy guy, you he he picked you out. He's a don't finish college. I mean You didn't. You didn't have a traditional path. And then you became a Andy Grove's guy and then and then you were forced out of Intel. So one, one thing I'm interested in is, are you shifting the culture of Intel back to an Andy Grove culture? And how do we manufacture more Andy groves in America?

Pat Gelsinger
W ell, you know, Andy Grove ,I mentored with him for 35 years. And in fact, passed away six years ago. He he did see Hitler as a Hungarian refugee, and if there's ever a question of our commitment to America, your freedom on our values, right? You know, Andy Grove is one of the people who saw, you know, truly, right, you know, that type of approach to the world firsthand. So this has deepened our culture and who we are, he complimented me four times in 35 years. I have every one of those four in my files at home, and tough, aggressive, paranoid, data driven, and we are rebuilding the Grovian culture at Intel. And I think some of the things that you don't like the Aspen Institute, the leaders program that you do, I think that is specifically meant to to help find the future Andy Grove and Pascal singers. You know, I came through a community college environment, go on a farm kid, you know, I believe deeply you know, whether it's, you know, the underprivileged, you know, those who are passionate the immigrants who have nothing, you know, those are the people, why are so many tech companies run today by Indian immigrants, they are hungry for the future, some of the brightest talent in the world. And, hey, I think there's a few farm kids out there, they're going to build fortune 100 companies in the future we just got to find them and grow them.

Steve Clemons
Does China have a lot of Andy Groves.

Pat Gelsinger
You know there's, China's now producing far more engineers thatn the US is. I will say there was a book written by Kai Fu Lee about six years ago that declared that the US already lost the AI race. Not a single one of the great breakthroughs in AI today has emerged from China. And I will say why is that? Right? I believe that the American chaotic open, your innovative cycle has destroyed any structured approaches to AI innovation in the world. Our system is superior, right because it fosters open innovative research

and collaboration across the world. Our system won this race. We already won it. Let's keep winning it in AI and cloud in quantum computing as well. Right? You know, you can have really good, you know, engineers, but it doesn't replicate the American system of innovation.

Steve Clemons
So I'm gonna go with the JFK strategy of going with the memo from Khrushchev. I want it and I got zero minutes over there in two minutes and 12 seconds here. So I'm gonna go to this one. One question right here at the back. This gentleman here. We'll take one there we have a microphone for him. So make it really really good. And really, really short.

Audience question
No pressure steve thanks Tobin Harshaw from Bloomberg opinion. We call it the chips act, but it's full name as the chips in science act. And as Anja pointed out in an op ed the other day, the science portion of this is underfunded by 8 billion dollars over the next two years. And that is the looking forward part of it. What can be done to get Congress and the administration to fully fund that part?

Steve Clemons
Absolutely. Great. Question. Penny. I'm gonna go to you first on the science ecosystem, and should we feel it as this Congress to get checked off the box or we have to do a lot more?

Penny Pritzker
I think we have to keep lobbying Congress because frankly, you know this, that's

Steve Clemons
Well taht's always true, but when did they get smart?

Penny Pritzker
I leave that to you who live in Washington every day, but no, I think that we're not done and of course, we've got to keep investing in it's absolutely essential. I think one of the things that they did do, right, was it that part of the funding that did get appropriated is about $11 billion. And frankly, P cast, which is the President's Advisors on Science and Technology, put together a plan for how that money should be spent. So I think there's a real effort to try and spend the money wisely. You know, now we'll see if it does happen, the quit but we do need more for sure,

Steve Clemons
pat I'm going to give you the last word if you get a chance to hear Aarthi provocar, who I just saw on the hall out here she's here in Aspen. She's one of the real great science heroines in America science story, so ask her that same question, what are we not have and make her really it'll lay it out. Because I don't think anybody knows that world more but in my view, when you look at the huge investments in India's making every other nation that wants to climb the ladder, it's my editorial comment is doing more of

proportion than the United States is doing. Even though we may have ramped up recently. So that's my editorial comment.

Pat Gelsinger
And, you know, the chips act itself was 52 billion, about 9 billion of that was specifically for long term research, right semiconductors. So that's a start but more

Steve Clemons
Morris Chang laughed at that by the way, well, hey, you know that CEO, the founder is TSMC.

Pat Gelsinger
Yeah. He also believes that Americans are lazy, stupid unions, okay, silliest thing, you know, etc. So, anyway, but he is a legendary figure and somebody who is not quite I respect him deeply. But that said, Go our science investment in the US has been declining over Republican and Democratic administrations for almost 50 years. Right. If you want to invest in the future, this is the thing to do right. As soon as we get chips act well underway. This is at the top of my list of lobbying. And let's say the last time it worked out pretty good.

Steve Clemons
Well, ladies and gentlemen, Intel CEO Pat Gelsinger former Secretary of Commerce and Businesswoman Penny Pritzker. Thank you both so much.