CANADA'S SEMICONDUCTOR COUNCIL

POSITION PAPER

Sovereign AI Needs Sovereign Silicon

The case for a semiconductor pillar in Canada's National AI Strategy

A position paper from Canada's Semiconductor Council (CSC) | July 2026

Executive summary

Canada's National AI Strategy, *AI for All*, makes the right call in putting sovereignty at its centre, and it is candid that chip fabrication sits almost entirely offshore. But one link in the chain is left incomplete: there is no sovereign AI without sovereign compute, and no sovereign compute without a domestic semiconductor base. Those same chips underpin Canada's defence, secure communications, and supply-chain resilience.

Our recommendation is direct: as *AI for All* moves into implementation, semiconductors should be scoped in as a named pillar. This is not a call to rival NVIDIA or the frontier model race; it is a call to put more Canada into sovereign cloud and to build on Canadian strengths in photonics, chip design, advanced packaging, and compound semiconductors. Canada's advantage is brain power, not cash outlay, and crucially the pillar needs no large new spending: the funding vehicles already exist. The task is to let Canadian industry plug into them.

Where the strategy gets it right

It names the chip dependency out loud. The strategy states plainly that the AI value chain "runs from energy and chips through compute, models, and applications," and that GPU fabrication sits almost entirely offshore. Naming a vulnerability is the first step to addressing it, and this framing creates the opening for a serious national conversation about where Canadian compute actually comes from.

It backs a Canadian-controlled fabrication asset. The commitment to further enhance and secure Canada's chip design and fabrication capabilities, building on the spin-off of the National Research Council's Canadian Photonics Fabrication Centre (CPFC), is a real signal. Canada is one of the few countries with a credible photonics chip story, and the strategy treats it that way.

It recognizes Canadian hardware and semiconductor companies. Hypertec, Micrologic, Ranovus, and Celestica appear in the strategy as part of the AI hardware stack. That recognition reflects the real diversity of the Canadian ecosystem, from optical interconnects to AI design to advanced packaging to data-centre systems, and Canadian optical and interconnect technology is already built into the next-generation processors that global leaders like NVIDIA and AMD ship. Hypertec's designation as the first Canadian NVIDIA OEM partner shows what Canadian capability can achieve.

It sets a demand signal at the right scale. The strategy estimates Canada will need 5.5 GW of AI compute by 2030, commits to a world-leading public supercomputer by 2031, expands the Compute Access Fund by $700 million, and points to finalized partnerships proposing 850 MW

of sovereign compute by 2030, scaling to 2.3 GW with investments in the tens of billions. That is the scale of demand a domestic hardware ecosystem needs to grow against.

It points its international partnerships in the right direction. The Sovereign Technology Alliance with Germany, and the modernized Canada-Japan relationship that explicitly names semiconductors, give Canada trusted partners who want to work with Canadian capability. That is leverage worth building on.

The gap: a stack without a reinforced foundation

The strategy rests on a correct insight: sovereignty in the AI era depends on the compute, data, and talent Canada can build and govern on its own terms. But no section speaks specifically to the layer beneath compute. Chips appear throughout the document as a feature of the compute conversation, never as a strategic base in their own right.

The strategy's own logic leads there. It takes a sensible "build-partner-buy" approach, building at home wherever possible, and that principle should extend to semiconductors: Canadian capability where it is strong, trusted partners where it is not, open standards throughout, and no lock-in to a single supplier. In practice, "Made in Canada" should include "Designed in Canada." The stakes are concrete: a compute build of 850 MW scaling to 2.3 GW, backed by tens of billions, will buy an enormous volume of chips, photonics, packaging, and systems. Without a plan to source Canadian where it exists, that spend flows offshore, and the sovereignty the strategy seeks runs on hardware Canada neither makes nor governs.

Sovereignty without supply-chain depth is only partial. If Canadian sovereign AI runs on imported chips, the claim is incomplete. The point is not to slow the compute build, but to make sure it pulls Canadian industry up with it.

Why semiconductors belong as a named pillar

Naming a pillar does what a paragraph cannot: it sets targets, directs procurement and capital, and gives an industry a clear place to plug in. It also ties semiconductors to priorities already on the government's desk, defence and security, economic sovereignty, the AI race, and high-wage regional jobs, all of which run on chips. Four elements would make up the pillar.

Buy Canadian across the whole system. The compute build will spend tens of billions on hardware. A capability that controls its processors but imports all of its memory, storage, and networking is sovereign in name only, so a Canadian-content expectation should reach the whole system, including what Canada buys from suppliers such as AMD and NVIDIA, global leaders that invest in Canadian talent and R&D as partners, not substitutes for domestic capability. Optical connections in particular, from inside the data centre to the long-haul networks between sites, are a Canadian strength, and tying procurement to open standards such as UCIe keeps Canadian designs compatible with global suppliers.

Back Canadian chip design, including at the edge. Canada is strong at designing chips, and not only the large data-centre processors. The low-power chips that put AI into vehicles, factories, power grids, and everyday devices, across sectors from transportation to energy and health, are exactly what Canadian firms such as Blumind, Irreversible Inc., and Taalas are already building, and where much of the value and the jobs will be. A dedicated design program with access to the financing the strategy already created would keep that work, and those companies, in Canada.

Build on Canada's expertise in advanced photonics and packaging. As the frontier of chipmaking concentrates in a few countries, the supply chain in photonics from design to manufacturing, integration and packaging that turn chips into finished systems (what the industry calls heterogeneous integration) is a layer where Canada can lead, with real infrastructure already provided by CPFC in Ottawa on III-V chip manufacturing, and in integration and advanced packaging provided by the IBM Canada-C2MI partnership in Bromont, Quebec. Extending the CPFC fabrication facility toward known good die and packaging would build on that.

Train and keep the talent. Semiconductor skills, from photonics to chip design, are not the same as software skills, and should be named in the government's talent programs. Just as important, Canada has to keep training its own: FABrIC, which produces roughly 1,000 chip designers a year, runs out at the end of 2028 and should be renewed.

Our recommendation

Canada's Semiconductor Council recommends that the Government of Canada scope a semiconductor pillar into the implementation phase of *AI for All*, aligned with the AI plan rather than separate from it. The funding vehicles largely exist. The question is whether the semiconductor companies that will actually build the sovereign hardware base can plug into them. CSC and its members are ready to work with Innovation, Science and Economic Development Canada (ISED) and the Minister's office to define that pillar, its targets, and the concrete initiatives that sit underneath it.

The member-backed asks on the following page set out specific, fundable initiatives tied to existing instruments. We offer this as a constructive starting point for that work.

About Canada's Semiconductor Council

Canada's Semiconductor Council represents the companies that design, build, package, and supply the chips that power AI, defence, telecommunications, and clean energy in Canada. Our members work across the full value chain, from photonics to compound semiconductors to AI chip design, and most regions of the country, in a Canadian semiconductor market projected at $13.4 billion (Invest in Canada). They are the companies that will build the sovereign hardware base this strategy calls for.

Member-backed asks

#	The ask	Mechanism / funding lever	What it delivers
1	**A Canadian-content plan for the sovereign compute build (850 MW to 2.3 GW), tied to open standards such as UCIe, including a defined share of Canadian content in the accelerators and systems procured from vendors such as AMD and NVIDIA.**	The federal role as strategic anchor customer and the Buy Canadian approach, applied to compute procurement.	Turns tens of billions in spend into a demand pull for Canadian capability across the full stack (compute, memory, storage, networking and optical interconnect, packaging, and systems) while keeping the architecture open and vendor-agnostic.
2	**Enhance existing innovation funding with emphasis on Canadian chip design and hardware ventures, anchoring domestic semiconductor IP across processors, microcontrollers, mixed-signal and edge-AI devices, not just GPUs.**	The AI Missions Program and the $130M National AI Institutes commercialization envelope, extended to hardware.	Keeps world-leading Canadian chip-design IP and talent anchored in Canada rather than scaling under other flags, across the priority sectors.
3	**Semiconductor talent named explicitly in the AI workforce pipelines, with continued support for academic training and prototype fabrication.**	The Global Talent Stream expansion, the $1.7B Budget 2025 talent attraction strategy, and extension of FABrIC.	Recruits and retains chip-design, photonics, III-V, MEMS, and analog talent, and sustains the roughly 1,000 designers a year FABrIC trains for Canadian industry.
4	**Advanced packaging and compound-semiconductor capability that builds on the photonics foundation and Canada's heterogeneous-integration assets.**	Advanced Photonics Chips Fabrication: build on the NRC's Photonics Fabrication Centre (CPFC) spinoff toward high volume facilities in Ottawa including known good die capabilities. Advanced packaging and manufacturing: build on assembly assets such as C2MI and IBM in Bromont, Jabil in Ottawa, and Celestica in Toronto.	Deepens the part of the value chain where Canada can realistically lead as leading-edge fab consolidates globally, and addresses the AI "power wall."
5	**Clear hardware on-ramps to the capital the strategy already created.**	BDC LIFT ($500M), the Canadian Tech Growth Fund ($500M), and the $700M Compute Access Fund expansion.	Lets fabless designers, packaging, and compound-semiconductor firms plug into existing financing on equal footing.