III. Executive Summary (limited to one page)

The Center for Integrated Electronic Systems (CIES) will be a new Economic Development Center of Excellence (ED-COE) that will perform market-driven, research and development projects (specified by private sector partners), involving systems integration of electronic hardware and software. Such projects will enable private sector partners in N.D. and elsewhere to create and manufacture new and/or improved high technology products, generate more revenue and profits, and/or be more competitive in the global marketplace thereby generating economic development opportunities (e.g., job creation and/or job retention). Market forces are demanding electronic systems be augmented by integration of programmability (via software) with hardware. Most electronic hardware (microprocessors, signal processors, etc.) depends upon programmability for its usefulness. Products featuring integrated hardware and software have powerful market niches in application-specific markets such as telecommunications, data storage, signal processing, sensors, wireless technologies, etc. While all of these applications start with electronic hardware, they rely on incorporating programmability (software) into a fully functioning integrated system. CIES will be an ED-COE center that is comprehensive in scope and capabilities specializing in integration of electronic hardware and software that will address unmet needs in N.D. CIES will bring multiple, private sector partners together to create an electronic systems integration cluster with complementary expertise and capabilities at NDSU. In particular, CIES will partner with North Dakota companies by utilizing current and new software and firmware resources to address unmet, market-driven needs for electronics hardware and software integration. CIES will also strive to attract non-North Dakota companies to the state via ED-COE research partnerships. CIES will help such private sector partners to be more competitive and profitable thereby positioning those partners to create upwards of 60-90 high paying jobs in the high technology industry clusters such as information technology.

Attachment A
Center for Integrated Electronic Systems (CIES)
Budget and Justification

REQUESTED OF THE ND ED-COE PROGRAM	Year 1	Year 2	Year 3	Year 4	Total
Technical Personnel (Systems Engineers and Grad/Undergrad Students)	290.200	351.560	278.450	200.665	1.120.875
Program Administration Personnel (Project and Financial Management)	110.571	118.627	114.657	110.345	454.200
Center Program and Operating Expenses	30.000	30.000	25.000	20.000	105.000
Systems Integration Tools (hardware, and software)	115.400	85.746	58.200	29.100	288.446
COE Business Development	20.000	20.405	20.322	20.752	81.479
TOTAL REQUESTED OF THE ND ED-COE PROGRAM	566,171	606,338	496,629	380,862	2.050,000
MATCHING FUNDS					
Private-sector in-kind/in-lieu of cash match for projects					
Bobcat Company (Doosan Infracore)	300.000	300.000	200.000	200.000	1.000.000
Datacom International Inc.	600.000	600.000	400,000	0	1.600.000
Pedigree Technologies	300.000	400.000	300,000	0	1.000.000
Intelligent Insights	250.000	125.000	125.000	0	500.000
TOTAL MATCHING FUNDING					4,100,000

Budget Justification for Funding Requested from ED-COE Program

Personnel

Technical Personnel - Funding will be used to hire systems engineers to work with the private sector partners on CIES programs. These positions are estimated at a market level of $80K/yr. In Years 2 & 3 we've estimated sustainability projects contributing to the funding of the engineer positions. This funding also includes graduate and undergraduate positions to work on CIES projects.

Program Administration Personnel - This funding is for senior project management (sr. engineer) and project financial administration.

Center program and operating expenses - these expenses include the supplies and materials needed for the execution and operating the CIES.

Travel - these expenses include business travel for meetings with private sector partners and research symposium for presentation of results.

Systems Integration Tools - These funds will be used to purchase hardware and systems tools.
Items include - compilers, assemblers, emulators, logic and network analyzers, and programming software (C, C++, Java, PHP, etc.)

COE Business Development - these expenses include market analysis, marketing, consultant and legal fees.
More detail is given in Business Plan (Attachment C - Business Plan).

Private-Sector Matching: The matching is based on commitments noted in the support letters for CIES activity (Attachment B).