

<u>РБНФ</u>	<u>Код для перевірки РБНФ</u>
program_name = ident;	program_name = SAME_RULE(ident);
value_type = "INT32_t";	value_type = SAME_RULE(tokenINTEGER16);
declaration_element = ident , ["[" , unsigned_value , "]"];	declaration_element = ident >> -(tokenLEFTSQUAREBRACKETS >> unsigned_value >> tokenRIGHTSQUAREBRACKETS);
other_declaration_ident = " , " , declaration_element;	other_declaration_ident = tokenCOMMA >> declaration_element;
declaration = value_type , declaration_element , {other_declaration_ident};	declaration = value_type >> declaration_element >> *other_declaration_ident;
index_action = "[" , expression , "]" ;	index_action = tokenLEFTSQUAREBRACKETS >> expression >> tokenRIGHTSQUAREBRACKETS;
unary_operator = "!";	unary_operator = SAME_RULE(tokenNOT);
unary_operation = unary_operator , expression;	unary_operation = unary_operator >> expression;
binary_operator = "AND" " " "=" "<>" "LE" "GE" "ADD" "SUB" "MUL" "DIV" "MOD";	binary_operator = tokenAND tokenOR tokenEQUAL tokenNOTEQUAL tokenLESSOREQUAL tokenGREATEROREQUAL tokenLESS tokenGREATER tokenPLUS tokenMINUS tokenMUL tokenDIV tokenMOD;
binary_action = binary_operator , expression;	binary_action = binary_operator >> expression;
left_expression = group_expression unary_operation ident , [index_action] value cond_block__with_optionally_return_value;	left_expression = group_expression unary_operation ident >> - index_action value cond_block__with_optionally_return_value;
expression = left_expression , {binary_action};	expression = left_expression >> *binary_action;
group_expression = "(" , expression , ")";	group_expression = tokenGROUPEXPRESSIONBEGIN >> expression >> tokenGROUPEXPRESSIONEND;
bind_left_to_right = expression , " :> " , ident , [index_action];	bind_left_to_right = expression >> tokenLRBIND >> ident >> - index_action;
if_expression = expression;	if_expression = SAME_RULE(expression);
body_for_true__with_optionally_return_value = block_statements__with_optionally_return_value;	body_for_true__with_optionally_return_value = SAME_RULE(block_statements__with_optionally_return_value);
false_cond_block_without_else__with_optionally_return_value = "ELSE" , "IF" , if_expression , body_for_true__with_optionally_return_value;	false_cond_block_without_else__with_optionally_return_value = tokenELSE >> tokenIF >> if_expression >> body_for_true__with_optionally_return_value;
body_for_false__with_optionally_return_value = "ELSE" , block_statements__with_optionally_return_value;	body_for_false__with_optionally_return_value = tokenELSE >> block_statements__with_optionally_return_value;

cond_block__with_optionally_return_value = "IF" , if_expression , body_for_true__with_optionally_return_value , {false_cond_block_without_else__with_optionally_return_value} , [body_for_false__with_optionally_return_value];	cond_block__with_optionally_return_value = tokenIF >> if_expression >> body_for_true__with_optionally_return_value >> *false_cond_block_without_else__with_optionally_return_value >> (- body_for_false__with_optionally_return_value);
cond_block__with_optionally_return_value_and_optionally_bind = cond_block__with_optionally_return_value , [tokenLRBIND , ident , [index_action]];	cond_block__with_optionally_return_value_and_optionally_bind = cond_block__with_optionally_return_value >> -(tokenLRBIND >> ident >> - index_action);
cycle_begin_expression = expression;	cycle_begin_expression = SAME_RULE(expression);
cycle_end_expression = expression;	cycle_end_expression = SAME_RULE(expression);
cycle_counter = ident;	cycle_counter = SAME_RULE(ident);
cycle_counter_lr_init = cycle_begin_expression , ":", cycle_counter;	cycle_counter_lr_init = cycle_begin_expression >> tokenLRBIND >> cycle_counter;
cycle_counter_init = cycle_counter_lr_init;	cycle_counter_init = SAME_RULE(cycle_counter_lr_init);
cycle_counter_last_value = cycle_end_expression;	cycle_counter_last_value = SAME_RULE(cycle_end_expression);
cycle_body = "DO" , ({statement} block_statements);	cycle_body = tokenDO >> (statement block_statements);
forto_cycle = "FOR" , cycle_counter_init , "TO" , cycle_counter_last_value , cycle_body;	forto_cycle = tokenFOR >> cycle_counter_init >> (tokenTO tokenDOWNT0) >> cycle_counter_last_value >> cycle_body;
input = "READ" , (ident , [index_action] "(" , ident , [index_action] , ")");	tokenGET >> (ident >> -index_action tokenGROUPEXPRESSIONBEGIN >> ident >> -index_action >> tokenGROUPEXPRESSIONEND);
output = "WRITE" , expression;	output = tokenPUT >> expression;
statement = bind_left_to_right cond_block__with_optionally_return_value_and_optionally_bind forto_cycle input output ";" ;	statement = bind_left_to_right cond_block__with_optionally_return_value_and_optionally_bind forto_cycle while_cycle repeat_until_cycle labeled_point goto_label input output tokenSEMICOLON;
block_statements = "{" , {statement} , "}" ;	block_statements = tokenBEGINBLOCK >> *statement >> tokenENDBLOCK;
block_statements__with_optionally_return_value = "{" , {statement} , [expression] , "}" ;	block_statements__with_optionally_return_value = tokenBEGINBLOCK >> *statement_in_while_and_if_body >> -expression >> tokenENDBLOCK;
program = "PROGRAM" , program_name , ";" , "DATA" , [declaration] , ";" , "START" , {statement} , "END" ;	program = BOUNDARIES >> tokenNAME >> program_name >> tokenSEMICOLON >> tokenDATA >> (-declaration) >> tokenSEMICOLON >> tokenBEGIN >> *statement >> tokenEND;
digit = "0" "1" "2" "3" "4" "5" "6" "7" "8" "9" ;	digit = digit_0 digit_1 digit_2 digit_3 digit_4 digit_5 digit_6 digit_7 digit_8 digit_9;

non_zero_digit = "1" "2" "3" "4" "5" "6" "7" "8" "9";	non_zero_digit = digit_1 digit_2 digit_3 digit_4 digit_5 digit_6 digit_7 digit_8 digit_9;
unsigned_value = (non_zero_digit , {digit}) "0";	unsigned_value = ((non_zero_digit >> *digit) digit_0) >> BOUNDARIES;
value = [sign] , unsigned_value;	value = (-sign) >> unsigned_value >> BOUNDARIES;
letter_in_lower_case = "a" "b" "c" "d" "e" "f" "g" "h" "i" "j" "k" "l" "m" "n" "o" "p" "q" "r" "s" "t" "u" "v" "w" "x" "y" "z";	letter_in_lower_case = a b c d e f g h i j k l m n o p q r s t u v w x y z;
letter_in_upper_case = "A" "B" "C" "D" "E" "F" "G" "H" "I" "J" "K" "L" "M" "N" "O" "P" "Q" "R" "S" "T" "U" "V" "W" "X" "Y" "Z";	letter_in_upper_case = A B C D E F G H I J K L M N O P Q R S T U V W X Y Z;
ident = "_", letter_in_lower_case , digit , digit;	ident = tokenUNDERSCORE >> letter_in_lower_case >> digit >> digit >> STRICT_BOUNDARIES;
sign = "ADD" "SUB";	sign = sign_plus sign_minus;
	sign_plus = SAME_RULE(tokenPLUS);
	sign_minus = SAME_RULE(tokenMINUS);
	digit_0 = '0';
	digit_1 = '1';
	digit_2 = '2';
	digit_3 = '3';
	digit_4 = '4';
	digit_5 = '5';
	digit_6 = '6';
	digit_7 = '7';
	digit_8 = '8';
	digit_9 = '9';
	tokenCOLON = ":" >> BOUNDARIES;
	tokenINTEGER16 = "INT32_t" >> STRICT_BOUNDARIES;
	tokenCOMMA = "," >> BOUNDARIES;
	tokenNOT = "!" >> STRICT_BOUNDARIES;
	tokenAND = "AND" >> STRICT_BOUNDARIES;
	tokenOR = " " >> STRICT_BOUNDARIES;
	tokenEQUAL = "=" >> BOUNDARIES;

	tokenNOTEQUAL = "<>" >> BOUNDARIES;
	tokenLESSOREQUAL = "LE" >> BOUNDARIES;
	tokenGREATEROREQUAL = "GE" >> BOUNDARIES;
	tokenPLUS = "ADD" >> BOUNDARIES;
	tokenMINUS = "SUB" >> BOUNDARIES;
	tokenMUL = "MUL" >> BOUNDARIES;
	tokenDIV = "DIV" >> STRICT_BOUNDARIES;
	tokenMOD = "MOD" >> STRICT_BOUNDARIES;
	tokenGROUPEXPRESSIONBEGIN = "(" >> BOUNDARIES;
	tokenGROUPEXPRESSIONEND = ")" >> BOUNDARIES;
	tokenLRBIND = ":@" >> BOUNDARIES;
	tokenELSE = "ELSE" >> STRICT_BOUNDARIES;
	tokenIF = "IF" >> STRICT_BOUNDARIES;
	tokenDO = "DO" >> STRICT_BOUNDARIES;
	tokenFOR = "FOR" >> STRICT_BOUNDARIES;
	tokenTO = "TO" >> STRICT_BOUNDARIES;
	tokenGET = "READ" >> STRICT_BOUNDARIES;
	tokenPUT = "WRITE" >> STRICT_BOUNDARIES;
	tokenNAME = "PROGRAM" >> STRICT_BOUNDARIES;
	tokenDATA = "DATA" >> STRICT_BOUNDARIES;
	tokenBEGIN = "START" >> STRICT_BOUNDARIES;
	tokenEND = "FINISH" >> STRICT_BOUNDARIES;
	tokenBEGINBLOCK = "{" >> BOUNDARIES;
	tokenENDBLOCK = "}" >> BOUNDARIES;
	tokenLEFTSQUAREBRACKETS = "[" >> BOUNDARIES;
	tokenRIGHTSQUAREBRACKETS = "]" >> BOUNDARIES;
	tokenSEMICOLON = ";" >> BOUNDARIES;
	STRICT_BOUNDARIES = (BOUNDARY >> *(BOUNDARY)) (!{qi::alpha qi::char_("_")});
	BOUNDARIES = (BOUNDARY >> *(BOUNDARY) NO_BOUNDARY);
	BOUNDARY = BOUNDARY_SPACE BOUNDARY_TAB

	BOUNDARY_CARRIAGE_RETURN BOUNDARY_LINE_FEED BOUNDARY_NULL;
	BOUNDARY_SPACE = " ";
	BOUNDARY_TAB = "\t";
	BOUNDARY_CARRIAGE_RETURN = "\r";
	BOUNDARY_LINE_FEED = "\n";
	BOUNDARY_NULL = "\0";
	NO_BOUNDARY = "";
	tokenUNDERSCORE = " _";
	A = "A";
	B = "B";
	C = "C";
	D = "D";
	E = "E";
	F = "F";
	G = "G";
	H = "H";
	I = "I";
	J = "J";
	K = "K";
	L = "L";
	M = "M";
	N = "N";
	O = "O";
	P = "P";
	Q = "Q";
	R = "R";
	S = "S";
	T = "T";
	U = "U";
	V = "V";

	W = "W";
	X = "X";
	Y = "Y";
	Z = "Z";
	a = "a";
	b = "b";
	c = "c";
	d = "d";
	e = "e";
	f = "f";
	g = "g";
	h = "h";
	i = "i";
	j = "j";
	k = "k";
	l = "l";
	m = "m";
	n = "n";
	o = "o";
	p = "p";
	q = "q";
	r = "r";
	s = "s";
	t = "t";
	u = "u";
	v = "v";
	w = "w";
	x = "x";
	y = "y";
	z = "z";